



69th
PITTSBURGH
REGIONAL
SCIENCE &
ENGINEERING
FAIR
April 4-5, 2008

JUNIOR DIVISION PROJECT ABSTRACTS

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Note: Additional projects may have been added after the printing of this book. Omissions should not be considered as a negative reflection on the student or their project.

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Project Number: JPS001

Grade: 6

Title: The Big Burn

Abstract: The purpose of my experiment is to determine what petroleum based products would burn longer, faster and/or hotter.

The procedure of my experiment is to first dip two paint sticks, one with gasoline and the other with kerosene. Next, place them both horizontally, igniting them for one minute and gathering data. Repeating steps again, only this time placing them vertically. The entire test was repeated again to get an average. The results were the gasoline stick only burned faster when placed in the vertical position. The kerosene stick burned faster in the horizontal position. My conclusion is that different fuels are absorbed and burn differently when placed in different positions.

Project Number: JPS002

Grade: 6

Title: You Nailed It

Abstract: The purpose of my experiment was to determine how many hits it takes to insert a nail into three different types of soft wood; Pine, Redwood, and Cedar. I did this project because my dad is a contractor. This inspired me to do a project on wood. I followed my procedures for building my test model to test my theories. I tested my theory using four trials on each wood type. After calculating the results, I found that Cedar was the softest of the three woods tested. This differs from my hypothesis that Pine would be the softest.

Project Number: JPS003

Grade: 6

Title: Say No to Brown Apples

Abstract: When I slice apples, they turn brown soon after. The purpose of this project is discovering what's possible to prevent that. For my experiment, I cut an apple into six equal slices and labeled the apples A-F. Using a spray bottle, I sprayed ten sprays of: lemon juice onto A, limejuice onto B, milk onto C, Sierra Mist soda onto D, water onto E, and left F plain. After to four-hour sessions, lemon and limejuice worked best, water second, and Sierra Mist and milk didn't help. So, now you know to say "NO" to brown apples!

Project Number: JPS004

Grade: 6

Title: If every car was hybrid?

Abstract: The amount of carbon dioxide emitted by conventional vehicles has a tremendous impact on global warming. This experiment was conducted to calculate and compare the global emissions of conventional versus hybrid vehicles. The miles per gallon for various types of vehicles i.e. cars, SUV, trucks, motorcycles were calculated. Total number of such vehicles in the world estimated. Total CO₂ emission calculated. This was compared with CO₂ emissions of hybrids based on published data. Huge reduction in CO₂ emissions were calculated with hybrids replacing conventional vehicles.

Project Number: JPS005

Grade: 6

Title: Catapult Designs

Abstract: The trebuchet is a fearsome catapult, but how do you make it launch the furthest? I am testing to see how where you put the fulcrum on the catapult arm effects how far the ammunition will go. I made a trebuchet with five different spots (holes) where the fulcrum will go. The middle hole shot the furthest flying ammunition. The closer the fulcrum got to the weight basket the farther the ammunition flew, but be careful! This also makes the side with the weight basket longer, causing it to smash into the trebuchet's base!

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Project Number: JPS006

Grade: 6

Title: May The Energy Of Peanuts Be With You

Abstract: I wanted to determine if peanuts have energy. First, I recorded the temperature of the water. Next, I lit the peanut on fire and placed in under the water. After the peanut went out, I recorded the temperature of the water. I compared the temperature readings and recorded my results. The difference in temperature could help to determine the amount of energy released.

Project Number: JPS007

Grade: 6

Title: Magnificent Magnets

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS008

Grade: 6

Title: Catapult Projectiled

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS009

Grade: 6

Title: Which Type of Golf Ball Goes the Farthest?

Abstract: I did my project to find out which type of golf ball will go farthest. I used the machine I built to hit a two, three and four piece golf balls five times each. After I hit them I averaged out their distances to find which ball went the farthest. The data I gathered from this was how far each ball went on a single hit. I concluded that the three piece ball went the farthest.

Project Number: JPS010

Grade: 6

Title: Nothin but net

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS011

Grade: 6

Title: Splitting Water

Abstract: I wanted to see if I could split water into two parts. I constructed an apparatus using a 9-volt battery, two wires, salt, water, two pencils, a glass, and cardboard. I dissolved the salt, connected the wires to the battery, then to the pencils to see if hydrogen and oxygen could be split out of the water. If bubbles develop on the pencils, the process worked.

Project Number: JPS012

Grade: 6

Title: An Alluring Force

Abstract: The title of my project is: An Alluring Force. My question is: Does the strength of a magnet vary with temperature? I hypothesized that the magnet will become less conductive as the temperature increases and more conductive as the temperature decreases. The materials I needed for this project were water, a thermometer, a bowl, BB's, a magnet, a stove, ice cubes, a marker, a pencil, paper, a pot, calculator, and tongs. After gathering my materials, I had to place several thousand BBs into a bowl. Then, I drew a line on the magnet. Next, I placed the magnet into the BBs up to the drawn line for fifteen seconds, and then I counted and recorded the number of BBs that stuck to the magnet. I repeated the steps above but this time placed the magnet in boiling water. Finally, I repeated the procedure a third time using a water and ice mixture. Be

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sure to do each trial three times. In conclusion, the cold magnet attracted an average of 1140 BBs, the room temperature magnet attracted an average of 1128 BBs, and the hot magnet attracted an average of 941 BBs. My hypothesis was correct; the magnet had more BBs stuck to it as the temperature decreased and less BBs as the temperature increased.

Project Number: JPS013

Grade: 6

Title: Stresses on Trusses, A Lesson in Bridge Design

Abstract: The purpose of this experiment is to determine what bridge design has better stress distribution, and greater load capacity. The procedures used were WPBD to determine stress, and model testing to find the load.

Bridge 1

Avg. compression on simulation-493.3 KN

Avg. tension force on simulation-110.2 KN

Successful simulation

Weight held on model 15 lbs

Bridge 2

Avg. Compression simulation -735.2 KN

Avg tension on simulator-1561.7 KN

Failed simulation

Weight held on model 15lbs sag

It seemed that bridge 1 was better designed than bridge 2 in Avg. stress, passing the model testing in passing the test.

Project Number: JPS014

Grade: 6

Title: Of Sphere, Oval and Cube, Least Air Drag?

Abstract: This project is on measuring air resistance of 3 different models: a sphere, cube, and oval. The models were placed in front of a fan and suspended horizontally in the air through a thin metal wire. A rubber band connected to the models was used to measure the drag force on the models, assuming the elongation in the rubber band scales with the drag force. The results for the 3 models were: 7 cm for sphere, 27 cm for cube, and 1 cm for oval. This suggests that quarterbacks would throw footballs farther than soccer balls or boxes.

Project Number: JPS015

Grade: 6

Title: How Fast Will It Go?

Abstract: My experiment was to perform several runs of a miniature car on different surfaces. I built a 6' ramp and applied four different surfaces -- carpet, vinyl flooring, sandpaper, wood -- to the ramp. I did a total of ten trials with the car to each surface. I timed each run, added the totals, then calculated the average. I was curious to see for myself which surface caused the most friction. The average times were as follows:

Carpet	3.384
Vinyl Flooring	1.798
Sandpaper	2.256
Wood	1.828

My hypothesis was correct. The vinyl flooring surface was the fastest because it was the smoothest surface. The carpet caused the most friction because it was the roughest surface. My hypothesis and conclusion were both the same.

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Project Number: JPS016

Grade: 6

Title: The best way to punt a football

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS017

Grade: 6

Title: Ball Exit Speed Ratio: A Comparison of Three Types of Bats

Abstract: Ball Speed Exit Ratio (BESR) is a measure of how quickly a ball comes off a baseball bat after being hit. The purpose of this investigation was to determine which bat—wood, aluminum or composite—had the highest BESR. The investigator had two experienced, adult, baseball players each hit a series of 11 balls with a wood bat. He had them repeat the procedure with aluminum and composite bats. The ball exit speed ratio was calculated for each of the hits. The results indicate that on average, the aluminum bat had the highest BESR.

Project Number: JPS018

Grade: 6

Title: The Art Of Skateboard Wheels

Abstract: The purpose of my experiment was to find out whether or not changing the durometer of the wheels on a skateboard would have an effect on the distance the skateboard will travel. My procedures were to gather all the materials. Then put the ramp on the ground and mark where the back wheels will start. Then place the skateboard on the ramp and let it go. Finally, record the data in a notebook. My averages were 232.9 in.-Satori wheels and 221.325 in. - Ricta wheels. My data showed that the lower the durometer was, the farther the skateboard would go.

Project Number: JPS019

Grade: 6

Title: Global Warming; Is It Real?

Abstract: Global warming has become a concern to many people around the world. Most say that it is caused by the CO₂ we put into our atmosphere. I decided to test if this was true. So I made two world models, one had a normal air and the other had high levels of CO₂. I exposed both models to heat and cold to simulate a normal day and night. I recorded temperature changes in each bottle and interpreted the results.

Project Number: JPS020

Grade: 6

Title: The Strength Of A Magnet

Abstract: This project is intended to find out if magnets have the same strength behind glass, behind paper as well as under water. Using three identical magnets, I placed one behind glass, one behind paper and one under water. Three identical paper clips were placed on the magnets. I collected the data by visually comparing the paper clips hold and pull to the magnets. The pull and hold of the magnets behind the glass was not as strong as magnet's behind the paper and under the water.

Project Number: JPS021

Grade: 6

Title: Does Temperature Affect the Rebound of Golf Balls?

Abstract: Golf is a very popular sport around the world, and the golf ball is important in playing a good game. The experiment tested the rebound of golf balls at different temperatures. The golf balls used were 10 frozen, 10 boiled, and 10 normal temperature. Each ball was dropped from 6 feet and the rebound was recorded. It was determined that the normal temperature golf ball

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rebounded the highest. The frozen ball was next, and the boiled rebounded the least. I would also like to find out if the surface that a ball bounces on affects the height it bounces.

Project Number: JPS022

Grade: 6

Title: Plop, Plop, Fizz

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS023

Grade: 6

Title: Styrofoam Cups for Hot or Cold

Abstract: People often drink from Styrofoam cups because they are inexpensive and convenient. This project looks at which liquids, hot or cold, should be put in Styrofoam cups. The hypothesis stated that hot liquids would stay hotter longer than cold liquids would stay colder. Six samples for each type of water: room temperature, hot, and cold were collected. Sample temperatures were recorded at three five minute intervals to determine the average change in temperature. The experimental results did not support the hypothesis but showed that the cold liquids increased in temperature less quickly than the hot liquids decreased in temperature.

Project Number: JPS024

Grade: 6

Title: Supercooling Water and Snap Freezing

Abstract: Supercooling is when water remains liquid below water's normal freezing point of 0 degrees Celcius. The experiment tested whether different types of water could be supercooled. Salt and ice were used to surround glasses of water. The dissolved salt/ice bath around the glass caused the water to have a temperature below the normal freezing point. The distilled water fell to minus 2 degrees Celcius, while tap water fell to minus 3 degrees with bottled water remaining the warmest. Snap freezing was done by dropping a piece of ice into the cup of supercooled water. I concluded water could be supercooled.

Project Number: JPS025

Grade: 6

Title: The Effect of Bat Types on Distance

Abstract: I chose this project because I wanted to find out if the type of bat affected the distance of the ball when hit. Studies have shown aluminum bats to cause more injuries to umpires, pitchers, base coaches and even fans, but it would be a hard fight to have them banned from play. Wooden bats break very easily and no league would be able to afford the cost to keep replacing them. I made my own pitching device to hit softballs with the same force every time, and the aluminum bats outperformed the wooden bats on each trial performed.

Project Number: JPS026

Grade: 6

Title: Which Type of Wood is the Strongest?

Abstract: The purpose of this investigation was to determine which wood was the strongest. The investigator made a nail holder to keep each of the nails stabilized in each of the wood samples. He then dropped a sledgehammer from the same height each time onto the nail in the nail holder. He measured how far each nail traveled into each of the wood samples. Each wood was tested five times. The results indicate that on average the nail in the maple traveled the shortest distance. Thus, the investigator concluded that maple was the strongest wood.

Project Number: JPS027

Grade: 6

Title: Which Desiccant Works Best?

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Abstract: The purpose of my science project is to analyze the effects of four different desiccants as they work to preserve a variety of fruits like apples, pears, oranges, and bananas. The desiccants I will be using are baking powder, baking soda with salt, Kosher salt, and Epsom salt. Desiccants can prevent the growth of bacteria on fruit by drawing out its moisture. I will evaluate the change in mass, appearance, and smell of the four different fruits at the beginning of the experiment and after six days of being in a certain desiccant.

Project Number: JPS028

Grade: 6

Title: Does Vision Work the Same Day/Night?

Abstract: The purpose was to find out how vision works in the day and night. My hypothesis was that vision works differently in both the day and night. I determined that my hypothesis was correct. Three subjects were used to test the hypothesis while going through obstacle courses with either the lights on or in the dark. The subjects went through the obstacle courses better when the eyes had already been adjusted before entering. Research showed that not only do the pupils help in adjusting the eyes vision but the cones and rods within the retina of the eyes also help.

Project Number: JPS029

Grade: 6

Title: Figuring Out Adhesion

Abstract: I became interested in this experiment when, one day, I applied tape to the back of my posters and hung them up at home, but later in the day; they were all on the floor. That annoyed me! The purpose for completing this experiment was to determine how well tape adhered to different surfaces. I hypothesized that tape, when placed on different surfaces, with weights added, would result in differences in adhesion. The information gained from this experiment would help others know what certain types of surfaces tape stuck to best!

Project Number: JPS030

Grade: 6

Title: The Effect of Magnet Strength

Abstract: I conducted my experiment to determine if magnet strength effects the performance of an electric motor. I tested three HO scale slot cars with magnets of different strengths on an HO drag strip to test their performance. The low and medium performance cars ran their best times with the strongest magnets. My hypothesis was that the stronger magnets would increase the performance of an electric motor. My hypothesis was true for the high performance motor only.

Project Number: JPS031

Grade: 6

Title: Acid In Beverages

Abstract: My purpose for my experiment is to determine which beverage contains the most acid. My procedure had the steps needed for my experiment. I filled three-fourths cup of the following: Pepsi, Lemon Juice, and Orange Juice in a container with a nail. My data was that Pepsi had the most corrosion. Lemon Juice was in the middle and Orange Juice had the least amount of corrosion. My conclusion was that my hypothesis of that Orange Juice would have the most acid is unfortunately wrong. Pepsi had the most. My project was fun-filled.

Project Number: JPS032

Grade: 6

Title: Is There Iron in Cereal?

Abstract: This experiment's purpose is to see if there is iron in cereal. A combination of cereal and water were liquefied to form a slurry. The mixture was placed in a glass bowl. A magnet was dragged along the bottom of the bowl to attract the iron. The magnet was placed on a paper

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towel and photos were taken of the iron. I found the greater the percentage of iron in the cereal, more iron was attracted to the magnet. There really is iron in cereal. The greater the percentage of iron in the cereal, the more iron you ingest.

Project Number: JPS033

Grade: 6

Title: Bleaches Affect on Paper

Abstract: My purpose of my experiment is to inform about bleaches affect on lined, inked, and colored paper. Now I will tell you the procedure used. First I gathered lined, inked, and colored paper, and put them in bowls. Next I filled it half with bleach and half with water. After letting it sit I took out the paper to dry. Then finally I recorded my observations. Some data I gathered was that the lined paper lost it's lines in several minutes, and colored paper took longer to absorb bleach. In conclusion I think the project went well with no problems.

Project Number: JPS034

Grade: 6

Title: Which Bulb Is Greenest?

Abstract: In my experiment, I examined which light bulb was most efficient and caused the least CO₂. I hooked a power supply to an ammeter, voltmeter, and five different bulbs to measure the power. I then converted brightness ratings to lumens. Finally, I estimated the power and CO₂ reductions if everyone in the USA converted to the most efficient light. I found out that the fluorescent bulb was most efficient, followed by the LED. My calculations showed that if everyone in the USA switched to fluorescent, it would save 1.7 billion MWh of energy and 2.7 billions pounds of CO₂.

Project Number: JPS035

Grade: 6

Title: Do Home Made Cleaners Clean Better?

Abstract: I want to know if homemade cleaners clean better than commercial cleaners. I will make a cleaner and take cleaners from the store (409, Odo ban, etc.) and test them on pieces of cloth that I will make 3 1 inch lines. Then I will clean them and see how long it takes for the lines to go away.

Project Number: JPS036

Grade: 6

Title: Apple Brown Buster

Abstract: My purpose for doing this science fair project was to find out which substance, acids, bases, or a neutral, would destroy the enzymes in an apple and keep it from browning. My hypothesis was that vinegar, an acid, would stop the apples from browning. Three different varieties of apples were sliced and dipped in five different liquids. The apple slices were then set aside and checked for browning at various times during a 24 hour period. My results showed that the lemon juice actually did better. It stopped two out of the three kinds of apples from browning best.

Project Number: JPS037

Grade: 6

Title: You Just Got Shocked

Abstract: My hypothesis is that I think the wool would create more static electricity. My question is that I want to know which material had the most electrical charge. I used an electroscope to test the reaction on the pieces of materials I tested. To make the experiment work I rubbed a ruler on the materials then I had to put the ruler up near the aluminum foil strips on the electroscope to see the electrical charge the pieces of material gave off.

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Project Number: JPS038

Grade: 6

Title: Which Insulation is Most Effective?

Abstract: My experiment's purpose was to determine which form of insulation would be most effective. During my procedure, I gathered equal amounts of wool, flannel, newspaper, cotton, down, and six jars, water, 1 thermometer, and a fridge. I heated the water until it reached 98.6 degrees, poured it into the jars $\frac{3}{4}$ of the way full, placed the jars into the insulated bags and put them inside the fridge. I recorded the results in fifteen minute increments for two hours. My data showed temperatures ranging from 72 to 63 degrees Fahrenheit. I concluded that the down made the best insulator.

Project Number: JPS039

Grade: 6

Title: Resilient Rubber!

Abstract: Western Pennsylvania is a region in which temperatures can fluctuate rather drastically. The purpose of this research project was to determine how temperatures had an effect on the elasticity of uncured rubber. My hypothesis of this project was that exposing uncured rubber to various temperatures would cause a significant change in the elasticity of the rubber. I had thought this because of the type of rubber I used was not vulcanized. Since it was not vulcanized, I thought that it would have a harder time springing back into its original shape.

Project Number: JPS040

Grade: 6

Title: Bouncing Basketballs

Abstract: Basketballs are a common sight on playgrounds year round. This project is to determine if temperature will affect the bounce of a basketball. A basketball was chilled to 28 degrees, warmed to 72 degrees and heated to 250 degrees. The basketball was dropped from a height of 5 feet each time the desired temperature was reached. The height of the bounce was recorded each time. Each of the 3 temperatures were tested on three consecutive days to get an accurate result. It was proven that the hottest ball bounced the highest, the coldest bounced the lowest.

Project Number: JPS041

Grade: 6

Title: CSI: Chromatography Scheme Inv.

Abstract: I wanted to see if chromatography could be used to determine who did a crime. I will use chromatography paper, on which was written a ransom note and markers to determine which one of my family members took my DVD player. After soaking the test papers in a solvent, I will compare the results to determine the thief.

Project Number: JPS042

Grade: 6

Title: Mmm...Boiling Or Icy

Abstract: I came up with this topic when I was searching for a topic on the internet. I hypothesized that magnets subject to hot and cold temperatures would result in a change of their magnetism towards other metals. I wanted to see if the attraction towards other metals would be different when placed in hot and cold temperatures or if it was going to be the same.

Project Number: JPS043

Grade: 6

Title: Natural Nail Eaters

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Abstract: The purpose of my project was to determine if the natural acids in different liquids like Coca-Cola, orange juice, cider vinegar, and distilled water could eat through a nail. My hypothesis is Coca-Cola will eat through the nail faster and better than all the other liquids. I will check the four containers every Friday until the 28 days are up.

Project Number: JPS044

Grade: 6

Title: Which Solar Panel Works Better?

Abstract: My project is based upon two different solar panels and how well they work. I used two solar panels, an Amorphous Silicon solar panel and a CIS solar panel. I tested both under the same amount of light. The Amorphous Silicon solar panel had only 3 volts while the CIS solar panel had 4 volts. Even though the CIS was smaller it generated more volts and energy. My conclusion turned out to be that the CIS solar panel worked the best.

Project Number: JPS045

Grade: 6

Title: A.F. vs P.W. Which Is The Better Insulator?

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS046

Grade: 6

Title: Electromagnetism

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS047

Grade: 6

Title: Effect Of Water On Clay

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS048

Grade: 6

Title: Cement Compression Strengths

Abstract: This investigation was conducted to determine if the compression strength of the cement is greater with steel wool or without. The procedures of this investigation are followed: mix and pour cement into 6 containers, adding 12.5g of steel wool to 3 containers. Once cement is dry, drop different massed weights on it until it breaks. Measure and record breaking strength for all 6 cements. The data of this investigation was the cement with the steel wool withstood almost twice the mass than the cement without steel wool. This concludes that cement with steel wool is stronger than cement without.

Project Number: JPS049

Grade: 6

Title: The Physics of Basketball

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS050

Grade: 6

Title: Electricity From What?

Abstract: The objective of this experiment is finding the fruit with the highest voltage of electricity. Two electrodes, zinc, and copper were placed in different citric fruits and were

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connected to a Multimeter. Limes, lemons, grapefruit, and oranges were tested to find the amount of volts generated in each fruit. Oranges produced the most amount of electricity out of all the other fruits. The application of this experiment is to see if a different electrolyte can be used in a battery to generate electricity instead of sulfuric acid.

Project Number: JPS051

Grade: 6

Title: Air Cannon Blast Velocity

Abstract: Air cannons can be used for fun and games but they can be used for science, too. I tested to see if the size of the hole in an air cannon affected the air blast by making three air cannons with different sized holes. I set up an experiment testing each air cannon's blast strength using a Styrofoam packing peanut as a target. I concluded the smaller the hole, the stronger the blast. Future work is planned to make a larger scale air cannon using a plastic trash can and a fog machine to see the blast!

Project Number: JPS052

Grade: 6

Title: Spinning Wheels

Abstract: My experiment was to see how tire pressure effected the stopping time of my bike. I like to ride and fix bikes. I thought this information would be interesting. First thing that I did was measure the gym floor. I marked the distance in feet. I used a tire pressure gauge and a pump to make sure the tire was accurate to the PSI. I then conducted my experiment. I concluded that at 25 PSI was the best for stopping. However this is not a safe PSI to ride a bike. You would be riding on the rim. There was not too much of a change in the stopping distances. I think you should use the manufactures PSI recommendations for safety reasons.

Project Number: JPS053

Grade: 6

Title: Thickness of a Wire Affects Energy

Abstract: Electricity is very important in our lives. The intent of my project was to determine if the thickness of a wire would affect the amount of current the wire could carry. I conducted tests on wire of three different thicknesses and I also conducted tests on three different lengths of wire. My test results indicated there was no significant difference in the amount of current that could be carried by the different wires. Based on my research I expected to find a difference but I think that the Ohm meter I used was not able to display the small amounts of difference between the wires and if I had used a more precise meter my results would have been different

Project Number: JPS054

Grade: 6

Title: Wet and Slippery

Abstract: Wet and Slippery

Everyone slips on wet floors. It always happens. The purpose of my experiment was to find out which of 5 surfaces would have the most friction: asphalt, concrete, wood, tile, or stone. I thought that asphalt would have the most amount of friction, because it is very rough and jagged. I poured a half-cup of water on each surface, propelled a plastic box across, and measured the distance traveled. The results from greatest friction to least friction are as follows: concrete, stone, tile, asphalt, and wood. My hypothesis was incorrect.

Project Number: JPS055

Grade: 6

Title: Humidity On Baseballs

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Abstract: Please visit exhibit for student's abstract.

Project Number: JPS056

Grade: 6

Title: Wooden vs. Metal

Abstract: I am an avid fan of baseball. In fact, I play the sport. The purpose of my experiment was to determine which type of bat would hit a ball the farthest using a hitting machine my grandfather and I created. I hypothesized that a wooden bat and a metal bat, when hitting the baseball, would yield different traveling distances. I felt the metal bat would work best because it was created using a stronger material, metal. I wanted to help others choose a bat that was perfect for them when playing baseball!

Project Number: JPS057

Grade: 6

Title: Weights - N – Wood

Abstract: In my project, I wanted to find what types of wood could hold the most weight. I took four different types and with assorted sizes of weights, I found their breaking points. My hypothesis was proven wrong: proving that cherry was strongest and not walnut.

Project Number: JPS058

Grade: 6

Title: What Type Of Salt Melts Ice Faster?

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS059

Grade: 6

Title: Bounce to the Max!

Abstract: In this project, four everyday glues were tested with borax solution to determine which recipe produced the bounciest ball. The borax crosslinks the vinyl polymer in the glue, and the properties change. Three different recipes of four glues were tested. The bounce height was measured immediately, 24 hours later, and 1 week later. My hypothesis was that white glue mixed with at least 1 1/2 parts borax would be the best recipe, but this was not exactly right. The most important factor in the recipe was the type of glue. The Elmer's glue polymer ball was stable, and bounced the highest.

Project Number: JPS060

Grade: 6

Title: Let's Play Soccer

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS061

Grade: 6

Title: Can Certain Substances Deflect Magnetic Fields

Abstract: The purpose of my experiments was to satisfy my curiosity about magnetic fields. I tried to answer the question by placing two cm of each of the materials tested next to one rattlesnake magnet. I put another magnet on the opposite side of the material and timed fifteen seconds to observe if the magnets attracted. My data showed that none of the materials tested deflected the magnetic fields of the magnets. My biggest conclusion was that magnets might not be affected by materials but rather the distance between them.

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Project Number: JPS062

Grade: 6

Title: What variables effect a trebuchet's distance of projectile?

Abstract: The reason why I planned on doing this experiment is because I studied medieval culture for a report in 3rd grade. I liked the plans so I made a trebuchet in 3rd grade. Now I am making one double the size. Then I bought 9 planks of wood and found plans on the Internet on how to make one. Next I made it with those plans and it worked. I plan on launching a baseball, a lacrosse ball, and a golf ball. My data is that the lacrosse balls average launch at 50 LB is 75 meters, the average launch for the golf ball at 50 LB is 62 meters, the lacrosse balls average launch at 60 LB is 82 meters, and the lacrosse balls average launch at 70 LB is 77meters. My conclusion is that the heavier the counterweight up to 60 LB makes the ball go farther, but after 60 LB I is around the same.

Project Number: JPS063

Grade: 6

Title: The Better Battery

Abstract: The purpose of my experiment was to determine which battery would last the longest. I bought four different types of batteries and inserted them into four maglite flashlights. I put a new light bulb into each battery. Before turning on the flashlights I tested the voltage of each battery. After two hours I turned off the flashlights and tested the voltage again. I did this every two hours until the flashlights no longer illuminated. I charted my findings. It was determined that the better battery was the Duracell Coppertop Battery.

Project Number: JPS064

Grade: 6

Title: pH Levels of Household Liquids

Abstract: I was curious about the pH levels of common household liquids. I tested liquids to see if they are an acid, a base, or neutral. I made a pH indicator of red cabbage juice and added it to the household liquids. The liquids changed colors, and I determined their pH levels using the pH color chart. My results showed that salt and eye wash are neutral, vinegar and lemon juice are acids, and baking soda, hand soap, and drain cleaner are bases. My paper will explain the materials, the procedure, the problems I encountered, and the results of my experiment.

Project Number: JPS065

Grade: 6

Title: How Does Propeller Pitch Affect Speed?

Abstract: I did my project to find out "What effect does the pitch of a propeller have on the speed of a model airplane?" I tested three different propellers three different times with a different pitch on a 50 foot course and tested how long it took to travel 50 feet with a stopwatch. One propeller had a pitch of 10x10 inch and took an average time of 1.7 seconds. Another propeller with a pitch of 10x6 inch and took an average speed of 2.8 seconds. Pitch does effect the speed, the bigger the pitch the faster the model airplane goes.

Project Number: JPS066

Grade: 6

Title: Which Fabric Keeps You Cooler?

Abstract: The purpose of my experiment was to determine which fabric keeps you cooler. To test my experiment, I used a light bulb, thermometer, and six different types of fabric. The thermometer recorded both temperatures and I subtracted one from the other. Nylon is the worst fabric to wear in the summer as it does not insulate against heat very well. Denim is the best choice to stay cool as it let little heat pass through.

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Project Number: JPS067

Grade: 6

Title: Which Is Faster Wheels or Legs?

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS068

Grade: 6

Title: Fruit and veggie power

Abstract: Hypothesis: I think that the lemon will be the best because it has more of the electrolyte needed to provide voltage. Procedures/Materials: his experiment calls for a multimeter, 9 wires, 2 potatoes, apples, oranges and lemons, and 8 zinc nails and copper pennies. This experiment's procedures are to insert a nail and a penny into each end of the fruits and then hook one to the multimeter, and then record the voltage. Results: My results in this experiment were that the apple got the most, the potato got the second most, then the orange, and last was the lemon. Conclusion: My conclusion is that my hypothesis was wrong. This happened because the apple was bigger and had more electrolytes. Therefore, my hypothesis was wrong.

Project Number: JPS069

Grade: 6

Title: When you kick different types of balls, which one goes the farthest

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS070

Grade: 6

Title: Where Will the Location of the Counter Weight on a Catapult Make a Golf Ball Shoot Farther?

Abstract: I believed that that the closer in you place the counterweight to the center of rotation or pivot of the catapult, the further the projectile will travel. I think this because the more time the throwing arm will have before hitting the stop, thereby giving the throwing are more time to accelerate. The more time to accelerate, the father the projectile will travel.

Project Number: JPS071

Grade: 6

Title: Expanding and contracting of air

Abstract: I did "The Expansion and Contraction of Air" because I wanted to learn more about how air particles move. I decided to put a water bottle in a 200 degree oven and one in a 0 degree freezer. I found out that the bottle in the oven starts to deform and the bottle in the freezer contracted. This occurred when the air particles either sped up or slowed down and caused to bottles to either expand or contract.

Project Number: JPS072

Grade: 6

Title: Boys vs Girls

Abstract: The purpose of my project was to determine who at the age of 11 and 12 has a better memory, boys or girls. My hypothesis was that girls would have a better memory than boys. Studies have shown girls mature faster, I based hypothesis on that information. My experiment proved my hypothesis wrong. All 5 boys scored 27 items correct and all 5 girls scored only 25 items. The boys recalled an average of 5.4 out of 10 items and the girls recalled only an average of 5 out of 10 items.

JUNIOR DIVISION – PHYSICAL SCIENCE

Project Number: JPS073

Grade: 6

Title: Which Resource is Most Accurate at Predicting the Weather?

Abstract: The purpose of this investigation was to find out what resources are the most accurate at predicting the weather. The investigator collected forecast data for temperature and precipitation from KDKA, the Tribune Review and weatherchannel.com over a seven-day period. He then compared that data to actual data he collected using an Acurite thermometer and rain gauge. After comparing forecasted data to actual data, the investigator concluded that weatherchannel.com was the most accurate at predicting the weather.

Project Number: JPS074

Grade: 6

Title: Which Baseball Bounces Better-Old or New?

Abstract: The purpose of this investigation was to determine whether new or old baseballs traveled the farthest off the baseball bat. Also, the investigator tested to see if official balls traveled farther than unofficial baseballs. The investigator gathered 3 old, unofficial balls, 3 new unofficial balls, 3 new official balls and 3 old official balls. He dropped the balls from the same height onto the sweet spot of a baseball bat that was stabilized in a bat rack. Using video footage of the bounces he recorded how far each ball bounced. He concluded that new, official balls bounced the highest.

Project Number: JPS075

Grade: 6

Title: Which Beam Shape is Strongest?

Abstract: The purpose of this investigation is to determine which beam shape is the strongest. A beam is a structure that helps carry load, then it transfers it to walls. Three samples of L, box, I and H beams were placed in a three point bend fixture and force was applied until failure. The amount of force required to fail was recorded in Newtons. The I beam proved the strongest, the L beam was the weakest. The shape of the beam is important, how it carries load is based on its shape. The I beam is strongest because it carries the load on the top of the I, and had support in the middle and the support on the bottom. The L is the weakest because the load is all on one piece of the L with no other support.

Project Number: JPS076

Grade: 6

Title: The Strong, the Weak, and the Bent

Abstract: My purpose was to see which guardrail was strongest. This could help make highways safer. My procedure was to bend metal into guardrail shapes and lay them across two pieces of wood. I then stacked bricks on them to see which held the most. My results were that a flat guardrail held almost nothing, a Box-beam held much more, Topped by a W-beam and then a Three-beam. I concluded that the three-beam guardrail held the most. However, this information was warped because we had to wire one together instead of welding.

Project Number: JPS077

Grade: 6

Title: Strength of Building Materials

Abstract: Please visit exhibit for student's abstract.

Project Number: JPS078

Grade: 6

Title: Fade Away

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Abstract: PURPOSE: to determine whether the rate of fading differs among construction paper and fade-resistant scrap-booking paper. PROCEDURE: paper samples to UVB light for 6 ½ hours, analyze results by comparing subjected paper to non-subjected paper. Compare readings from spectrophotometer to determine degree of fading among paper. DATA: Spectrophotometer readings taken on paper samples before and after UVB exposure indicate construction paper faded considerably more than the scrap-booking paper. Further analyses of the data will determine the variations of fading among paper colors. CONCLUSIONS: The composition of the scrap-booking paper does prevent it from fading as quickly as regular construction paper.

Project Number: JPS079

Grade: 6

Title: Effect of Pressure on The Melting Point of Ice

Abstract: The Purpose of my project is to test the effect of pressure on the melting point of ice and the effect of varying the pressure on the melting point of ice. The procedure I used was weights of 5 and 10 pounds were suspended from a block of ice, and the time taken for the weights to go through the block was measured. Experiment repeated, and averages obtained. The data's average time: (ten-pounds): 34 mins. (Five-pounds): 59 mins. In conclusion, pressure, in the form of weights, lowers the melting point of ice. Heavier object, by applying more pressure, melts ice faster than a lighter object.

Project Number: JPS080

Grade: 6

Title: Got Gas?

Abstract: Ethanol fuel is becoming one of the most popular forms of fuel for drivers for their cars. Not only is it cheaper, but a cleaner fuel source. Unfortunately, it has been stated that not all cars can use ethanol because it affects the fuel lines of the cars. My hypothesis of my research project was that E85 gasoline would cause a significant change in the fuel lines of a car not made to run on it. I thought it was an interesting topic to complete and would help people understand why or why not it could be run in their cars. I also wanted to determine what would happen to the fuel line. Lastly, I wanted to determine if there was a type of fuel line that could hold up running on E85 gasoline.

Project Number: JPS081

Grade: 6

Title: Density Detective

Abstract: Many things have died and been buried over the many years that the aaaaaearth has been "alive." I thought about this and formulated an experiment. For my experiment, I put 3 different chicken bones into 3 different containers, each with a different liquid. From this, I would be able to distinguish if a liquid's density would affect how well it will preserve something. I discovered that some of the densities grew! I realized that the bones actually absorbed the liquids. The lowest density liquids were absorbed the most. I found my hypothesis neither right or wrong.

Project Number: JPS082

Grade: 6

Title: A Fire Burning Situation

Abstract: I wanted to see which wood was more resistant to burning. I am going to use 5 samples of each Pine 1, Pine 2, Oak, Poplar wood to see which type of wood will be the most resistant to burning. I will also subject the wood to different times of flame exposure.

Project Number: JPS083

Grade: 6

Title: Air Pressured Footballs

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Abstract: Baseballs always go the same distance. Footballs are inflated and can be kicked longer with the right amount of air pressure. An apparatus was built that would apply the same amount of force to a football from a kicking tee and a kicking arm, dropped from the same location. The amount of air pressure in the football was changed with each kick beginning with more than recommended and working down. The ball was kicked 3 times to ensure accuracy. Too much air pressure was better than too little, but not as good as the recommended ideal. More is not always better.

Project Number: JPS084

Grade: 6

Title: Let It Light

Abstract: Lighting a LED light with voltage from lemons would be useful to my family. It could even help the military. With the right voltage from the lemons, a soldier could read a map. I took eight lemons and put a penny and screw into each of the lemons. They were attached in a series by clips. When eight lemons were connected, I attached a clip to a LED light. The chemicals in the lemon made the LED light because there was enough voltage. My hypothesis was supported because the LED light lit. I learned that lemons have low voltage. You should use fresh lemons for this experiment.

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Project Number: JLS001

Grade: 6

Title: DNA Extraction

Abstract: First, I had to chill my rubbing alcohol and the half tsp. of salt, one third c. of water, and one Tbsp. of dishwashing detergent. That is my extraction liquid. Second, I line the funnel with the cheesecloth and put the funnel into the glass. Third, I put the strawberries in a sandwich bag seal it and crush them for 2 min. then put the extraction liquid in the bag. Next I crushed them for another min. Finally, I put the chilled rubbing alcohol into the juice from the fruit and put all the stuff in the test tube. Now that is my experiment and what I did during my experiment.

Project Number: JLS002

Grade: 6

Title: What is the affect of height above ground on the attraction of birds to a feeder?

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS003

Grade: 6

Title: My Mum is Bigger Than Your Mum

Abstract: The purpose of my experiment is to determine what fertilizer works better on making plants grow bigger and healthier. The procedure of my experiment is to buy two yellow mums, putting one in a planter with potting soil and horse manure and one with Miracle Grow and potting soil, watering them every other day equally. The plant with Miracle Grow was fertilized once a week. I measured the plants bi-weekly. The results were that the plant with the horse manure seemed to have gotten somewhat taller and fuller. My conclusion is that my hypothesis is not supported because the Miracle Grow plant did not grow taller and/or fuller.

Project Number: JLS004

Grade: 6

Title: Do Roses Like Soda Too?

Abstract: Cut roses need nutrients to stay fresh. All cut flowers need water but can benefit from sugar and a biocide like citric acid. By placing cut roses in three different liquids: plain filtered water, filtered water and Sprite soda, and filtered water and Coke soda, then observing the three sets of roses at 6:00 pm daily for 7 days, the flowers were observed for freshness. The freshness of the roses was determined by the degree of wilting and browning of the flowers. I determined that cut roses stay fresh the longest in Sprite soda.

Project Number: JLS005

Grade: 6

Title: Let's Plant Some Answers!

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS006

Grade: 6

Title: Watering Plants: There is a Choice

Abstract: Droughts often force us to water plants with as little water as possible. Now, there is another type of water we can use called graywater, household wastewater that is not toilet water. I wanted to find out which typea of water was the best for watering non-edible plants: graywater, tap water, or rainwater. To collect the data, I separated 30 spider plants into three categories for each water type. Watering in consistent intervals, I measured their widths and heights at the experiement start and finish. The graywater plants grew the most on average at 10% higher and 28% wider.

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Project Number: JLS007

Grade: 6

Title: To lie or not to lie

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS008

Grade: 6

Title: What Soil Helps Tomato Plants Produce the Most Fruit?

Abstract: The purpose of this investigation was to determine whether tomato plants grown in Miracle Grow potting soil produced more fruit than tomato plants grown in topsoil over an 11-week period. Tomato plants were grown in different containers. One container contained Miracle Grow potting soil. The other container contained topsoil. The watering schedule was the same for both containers and the light exposure was also the same. After an 11-week growing period, all fruit was counted. Results indicate that the Miracle Grow plants produced 53 more tomatoes than the potting soil plants.

Project Number: JLS009

Grade: 6

Title: The Role of Salivary Ph in Causing Cavities

Abstract: The purpose of the experiment is to determine the role of the salivary pH in causing cavities. First I got all the things needed, which were pH test strips, cups to collect spit, test subjects, and food. Then I collected spit from my family before eating food, after eating food and after rinsing the mouth. I found that pH was least after eating the food and it was highest after rinsing the mouth. The conclusion was that you should rinse the mouth after eating so that the salivary pH is high and thus will not play a role in causing cavities.

Project Number: JLS010

Grade: 6

Title: "Getting to the Root of the Fight for Water"

Abstract: Underground, where roots search for water, competition is fierce. By comparing thistle tap roots, I tested my hypothesis that the length of these tap roots depend on the length of nearby roots systems. I needed a place with areas of short rooted grass and long rooted grass. An abandoned golf course became my laboratory. I compared tap roots on greens to those that grew in the fairways. The tap roots that grew in the fairways were more than twice as long as those that grew on the greens and tee boxes, where the grass roots were much shorter.

Project Number: JLS011

Grade: 6

Title: Which Wasp Repellent Works the Best?

Abstract: The purpose of this investigation was to determine which wasp repellent works the best. The investigator placed a wasp inside an aquarium. He then sprayed a small piece of paper with OrthoMax Hornet and Wasp Killer. He placed the paper inside the aquarium and charted the movement of the wasp over a period of 2.5 minutes. He repeated the procedure with three other wasp repellents. He calculated the average distance that the wasp remained from the repellent. The investigator concluded that the wasp stayed furthest away from the Spectracide repellent.

Project Number: JLS012

Grade: 6

Title: DNA Extraction

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Abstract: Spooling DNA can be accomplished with simple home products from the kitchen and the medicine cabinet. In this experiment, spooled DNA from onion extract was completed by using isopropanol alcohol and detergent. The DNA was sifted out with a stick and then filter paper and its weight measured. The purpose for this experiment was not only to obtain DNA but also to increase the amount of DNA spooled so that it can be studied.

Project Number: JLS013

Grade: 6

Title: Do Plants Grow Faster Up, Down or Sideways?

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS014

Grade: 6

Title: Are Hospital Cafeterias Making Us Sick?

Abstract: While my father had heart surgery last summer, we ate a lot in the hospital cafeteria. Prior to the end of the school year, several friends were talking about several fast food restaurants having E.Coli in their ice machines. I wondered if it could happen to fast food restaurants, why not hospitals. I decided to test several area hospital cafeterias' ice dispensing machines for the presence of E.Coli. I obtained MacConkey Auger Petri dishes that indicate if gram negative bacteria (E.Coli) were present. After two (2) sets of testing, I was astonished at the results as several hospitals were positive.

Project Number: JLS015

Grade: 6

Title: Does the Size of a Dog Affect Its Heart Rate?

Abstract: The purpose of this investigation was to determine whether or not the size of a dog affects its heart rate. Twenty dogs were evaluated in a veterinarian's office. Each dog was weighed on a scale and the weight was recorded in kilograms. The investigator also measured the heart rate of each of the dog's for one minute. The results indicated that as a dog's size increases in kilograms so does its heart rate.

Project Number: JLS016

Grade: 6

Title: Why people get scared

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS017

Grade: 6

Title: Concentration

Abstract: My purpose is to find out if adults or kids are better at concentrating. My procedure is to work quietly for 15 minutes, then work with music for 15 minutes. They picked a number from 1-5 of how well they were able to concentrate with and without music. Person A, who is an adult, thought it was easier to concentrate without music. Person B thought the same. But Person C though it was easier to concentrate with music, because he kept entertained. Person D though like person A and B. My conclusion is that kids are better at concentrating

Project Number: JLS018

Grade: 6

Title: Can Photosynthesis Save Lab Animals From Testing?

Abstract: Can the effectiveness of sunscreen be determined using plants rather than animals for testing sunscreen products? Sunscreen on a plant's leaf blocks ultraviolet light and prevents/slows down the photosynthesis process and affects growth. Three plants were tested

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during a two week period. Plant #1 had sunscreen applied to a leaf, Plant #2 had electrical tape on a leaf and Plant #3 was the control. Plant #1 did not grow as well as the other two. As a result, other products (cosmetics) could be tested using plants. Also, chemicals in sunscreen could be tested for use as weed killers.

Project Number: JLS019

Grade: 6

Title: Where Has All the Water Gone?

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS020

Grade: 6

Title: Which Soap Works the Best?

Abstract: For several years, there has been controversy over whether antibacterial soap does more harm than good. In this experiment, antibacterial soap was compared to regular soap to discover if there is really a big difference between the two at disinfecting hands. Six different soaps were tested by inoculating *Escherichia coli* bacteria onto gloved hands. The hands were then washed and swabbed to inoculate agar plates. The plates were incubated for 48 hours at 37 degrees Celsius. Bar soap did the worst and foam soap the best with liquid soap in between regardless of antibacterial properties. Therefore, using antibacterial soap isn't necessary.

Project Number: JLS021

Grade: 6

Title: It's A Germ's World

Abstract: In my project I tested which had the most bacteria: a cell phone, computer keyboard, and a steering wheel. I hypothesized that the cell phone would have the most bacteria followed by the keyboard and then the steering wheel. First I cleaned off all three items with alcohol, and then swabbed them onto the petri dish. That was my control. Then I waited 10 days and again swabbed my items. I repeated this three times for all three trials. Part of my hypothesis was correct. The cell phone contained the most bacteria, however the steering wheel came in second and the keyboard last.

Project Number: JLS022

Grade: 6

Title: Paw Preference in Pets

Abstract: Are dogs right pawed or left pawed? Or does it not make a difference to them? During this experiment I will observe several different dogs to see if they are preferring one paw over the other, or if they have no preference. I believe that dogs do have a preference. Just as humans are right handed or left handed.

Project Number: JLS023

Grade: 6

Title: Stinky Bugs

Abstract: My project is to find a way to get rid of Stink Bugs. I picked this project because we have a lot of Stink Bugs in our house, and I wanted to know how to get rid of them safely, without causing harm to anyone. I caught the stink bug, and put it into a container with the household product I was testing. I observed the Stink Bug and recorded all necessary information. I repeated this process with all the products needed for the experiment. I found that pine sol was the most effective product used in the experiment.

Project Number: JLS024

Grade: 6

Title: Temp. & Cut Flowers' Absorp. Rate of Water

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Abstract: The purpose of my experiment was to discover the effect of water temperature on the absorption of water for carnations. I know florists chill flowers to keep them fresh. However, I found that the flower in the warmest place caused it to “drink” water the fastest. This is because warm molecules move faster than cold water molecules. This experiment shows us when a cut flower is in a warm place, it can “drink” liquid through thin pipes into the petal at a faster rate. Florists keep their flowers cold not due to water temperature but chilling them like fruit fresh.

Project Number: JLS025

Grade: 6

Title: To Exercise or Not to Exercise

Abstract: I am doing this project because it is useful for people with high blood pressure. I hope to learn about blood pressure in general. I took my subjects' blood pressure and then had them walk stairs. After they were finished walking stairs for five minutes, I took their blood pressure again immediately after. My results show that all of my subjects' blood pressures went up with exercise. This happened especially with older subjects. For this project I used all materials and came up with questions and answers. I did this free of prejudice and with an open mind towards everyone.

Project Number: JLS026

Grade: 6

Title: Young and Lovely

Abstract: The purpose of my experiment was to determine if Vitamin E slowed the aging process. I used a rose petal to help me determine this. I became interested in this experiment when I applied the liquid from a Vitamin E capsule to a cut I received when falling off my bicycle. To this day, I do not have a scar from the accident. The information gained from this experiment would help others with the healing process of their cuts.

Project Number: JLS027

Grade: 6

Title: Does Soil Affect The Propertys Of Water

Abstract: The purpose of my experiment was to see if dirt really affected the properties of water. First, I gathered the supplies and collected dirt samples from different areas. Next I took a small shovel, collected dirt samples from different areas and put them in a tin. I then put 5 cups of water in the container. I then let the mixture set for 30 minutes to 1 day. I took out my test kit and tested the waters. Next I recorded my data in my Science notebook. The dirt near the Pine Tree affected the water the most.

Project Number: JLS028

Grade: 6

Title: Termite Taste Test

Abstract: The purpose of this project is to determine which type of wood product termites prefer: untreated lumber (control), plywood, pressure treated lumber or particle board. Sixty termites were placed in each of four containers with wall models build from the four test materials. The mass of the wall models was measured in grams every 3 days for 21 days to determine which wood material was being digested the most by the termites. The termites preferred the plywood overall, followed by the untreated lumber (control), then the pressure treated lumber. Termites preferred the particle board the least.

Project Number: JLS029

Grade: 6

Title: Color vs Clear

Abstract: I read in the newspaper that colored bristled toothbrushes retained more bacteria than clear bristled. My parents are dental professionals and neither had ever heard of this, nor could I find research to support it. Two subjects brushed their teeth with each toothbrush for 3

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consecutive days. Bacteria was collected and streaked. After 3 days I compared the amount of colonies. The experimental results did not support my hypothesis. One subject had more on the clear and the other had the opposite result. This experiment has potential to be expanded by increasing the number of subjects to better represent the population.

Project Number: JLS030

Grade: 6

Title: Affect Of Salt On Plant Growth

Abstract: This experiment was conducted to see how salt water affects plants. Plants (radish, squash and grass) were grown from seed and salt concentrations of control - 0%, 4%, 6%, and 8% were prepared. Plants were watered with the different salt concentrations and heights and weights were recorded. The salt water seems to have affected the radish plants' growth the most though both the squash and grass were also affected. The plants exposed to salt water eventually wilted and started to die with those at 6% and 8% solutions affected the most across all plants tested.

Project Number: JLS031

Grade: 6

Title: Which Liquid Evaporates Fastest?

Abstract: I used water, salt water, oil, vinegar, and milk. I hypothesized that water, a thinner liquid, would evaporate fastest. To conduct my experiment, I dropped 10 mL of each liquid into 15 test tubes (3 per liquid). On days one, four, and seven I marked the new liquid level. I used the differences from day one to seven, to determine the fastest evaporating liquid. I proved my hypothesis to be correct, because water had the greatest difference, start to finish. I found that the liquid's thickness affects rate of evaporation.

Project Number: JLS032

Grade: 6

Title: Reproduction of Yeast in Sugar Substitutes

Abstract: I chose The Reproduction of Yeast in Sugar Substitutes. In my project I will be using different bottles and water to measure how the yeast reacts to sugar substitutes. When yeast is mixed with sugar water it produces CO₂. I will collect the CO₂ and compare each reaction.

Project Number: JLS033

Grade: 6

Title: Musical Plants

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS034

Grade: 6

Title: Houseplants: Caffeine or Not

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS035

Grade: 6

Title: The Roots of Rock and Roll

Abstract: The title of my experiment is The Roots of Rock and Roll. I wanted to do this experiment because I've seen people do it and I wanted to give it a try myself. My hypothesis was that the Rock plant would grow faster because I thought the sound waves would travel faster because of the beat. I started my experiment by taking four cuttings from a plant. I thought that this would be faster than growing plants from seeds, since there is a limited amount of time to conduct my experiment. For three weeks, I rooted the plants. On day 21 of my experiment I observed that the roots were large and healthy enough to plant in soil. I potted each cutting in its

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own container with potting soil. I watered them and labeled each container. Rock, country, classical, and control. I measured each cutting. I watered the plants and placed the plants near a window which would have the mornig sun. Each day I took each plant in a room and played music for 2 hours except for the control plant. At the end of my experiment each plant had grown 1cm. Each had grown at the same rate.

Project Number: JLS036

Grade: 6

Title: Cell Phones....Driving?

Abstract: I chose this project because I wanted to see how talking on a cell phone affects a person's driving skills. The procedure of my project is: Have each volunteer play video game to get familiar with it. Have first volunteer play video game without talking on cell phone three times. Record scores and average. Give volunteer cell phone and have someone call him while playing video game three times. Record scores and average. My results showed a marked increase in time when drivers were talking on cell phone and more accidents. In conclusion, driving, while talking on a cell phone is dangerous.

Project Number: JLS037

Grade: 6

Title: Does a running start affect the length of a jump?

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS038

Grade: 6

Title: A Better Back Tuck

Abstract: My Pittsburgh Science Fair project is named A Better Back Tuck. for my experiment I am going to see what helps you do a back tuck better, if you run further, or tuck in your legs more. To test this experiment I will do a back tuck how I normally do, then I will do a back tuck with more steps and tucking in my legs more and see which one is more effective. I want to do this experiment because I love gymnastics and cheerleading. And I wanted to see what would help me improve my back tuck. So I though I could test it out for my science experiment that's how I thought of my experiment.

Project Number: JLS039

Grade: 6

Title: Bacterial growth and resistance

Abstract: I was curious to see if there was bacteria in school and it's resistance to antibiotics. I took samples from different places using agar, swabs, tubes, plates and antibiotics. I had plates that were prepared with different antibiotics. The plates were put in an incubator. The plates were examined and colonies of bacteria were counted. My data showed that all the surfaces contained bacteria but the antibiotics successfully killed it. My experiment confirmed that the most highly touched surfaces contained the most bacteria but none of the bacteria was resistant because there was no bacteria on the antibiotic plates.

Project Number: JLS040

Grade: 6

Title: Pooch Smooch

Abstract: I wanted to see whose mouth was the cleanest, my guinea pig, dog, or my mouth. I swabbed the mouths of all three subjects, placed the swab on a agar dish, waited a certain period of time, then compared the results.

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Project Number: JLS041

Grade: 6

Title: Winter and Summer Solstice

Abstract: My experiment is to explain the Winter and Summer Solstice. For my procedure I used two 2-inch Styrofoam balls representing Earth, a 5-inch Styrofoam ball representing the Sun, and a circular platform to represent the Earth while spinning on its axial tilt, (once every 24 hours) while orbiting the Sun, (once just over 365 days). On Winter Solstice, the North Celestial Pole is tilted away from the sun, thus receiving less energy from the Sun, giving the Northern Hemisphere the shortest day of the year, December 21st or 22nd. The reverse is true for the Summer Solstice, June 21st.

Project Number: JLS042

Grade: 6

Title: Are Your Hands Clean?

Abstract: My experiment's purpose was determining the most effective hand washing time for removing bacteria in order to inhibit the spread of disease. Hands washed fifteen, twenty, twenty-five and thirty seconds were swabbed and streak plates prepared. Bacterial growth was recorded at five days. No growth or one colony existed for twenty, twenty-five and thirty seconds, disproving my hypothesis of thirty seconds being the best time. Results indicate washing for twenty seconds is adequate to remove bacteria. Washing over twenty seconds is unnecessary. Possible future research could include testing effects of washing methods, soaps and water temperature.

Project Number: JLS043

Grade: 6

Title: Memory: Better in Morning or Night

Abstract: In order to determine if it is better to memorize something in the morning or night, I tested two people six times each; three times in the morning and three times at night. I gave them five minutes to memorize a list of 10 words at 7:30 a.m. and at 7:30 p.m. the next day. Then, I asked them to write all the words they remembered from the previous morning. I did this three times. I repeated this same process at 7:30 p.m. three more times. The results proved it to be better to memorize at night.

Project Number: JLS044

Grade: 6

Title: Old vs Young

Abstract: The purpose of my project was to find out who would learn a trick faster, an old dog or a young dog. I based the project on three tricks to get an accurate average. I used tricks that both dogs did not know yet. The tricks were heal, speak, and catch a treat from the nose. My hypothesis was, the old dog would learn faster. I experimented for seven days and I learned that if you try hard enough both dogs would learn the tricks that you are teaching them.

Project Number: JLS045

Grade: 6

Title: Which Wood Burns the Longest?

Abstract: The purpose of this investigation was to determine which wood out of oak and magnolia burned the longest. The investigator tested each wood three times. He cut the wood into pieces that were 43cm long and 2.54cm in diameter. He burned each of the wood pieces in the fireplace and recorded the time it took for the wood to burn completely. On average, oak burned the longest when compared to magnolia.

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Project Number: JLS046

Grade: 6

Title: What color of bird food do birds like best?

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS047

Grade: 6

Title: Air Polluted Areas

Abstract: My purpose for my experiment is to find out which places in my neighborhood have the best air quality. The procedures I used were putting index cards with petroleum jelly spread on one side of each card in different places seeing how much darker the cards were. I thought that the most air polluted area would be near a street because of vehicles letting out exhaust. My hypothesis was correct because the card that was placed near a street had more air pollution on it than any other card.

Project Number: JLS048

Grade: 6

Title: Does Sugar Prolong Life Cut Flowers

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS049

Grade: 6

Title: See the "C"

Abstract: I've always wondered exactly how much vitamin C is actually in orange juice because labels can be very misleading. My hypothesis was that when an iodine/starch solution was mixed with orange juice, the iodine solution would change color based on the amount of Vitamin C in the orange juice. I figured that the less amount of orange juice it took for the iodine solution to change from blue to white, the higher the Vitamin C content in the orange juice!

Project Number: JLS050

Grade: 6

Title: Comparative study of handwashing methods

Abstract: Hand-washing prevents the spread of bacteria and germs. The purpose of this experiment is to test which hand-washing method is the most effective for killing germs. My hypothesis is that Hand-washing with an antibacterial gel, such as Purell, is the best technique to eliminating germs. For my experiment, I collected swab samples from unwashed hands, hands washed with soap, and hands washed with antibacterial gel. I cultured each sample on petrie dishes and incubated the samples. Then I examined bacterial growth on each petrie dish after 24 hours. I recorded the data that I collected from each sample, and took photographs of the bacterial samples. I noted the number and appearance of bacterial growth on each petrie dish. My observations showed that the hands washed with soap and dried with a towel actually had more bacteria than the unwashed hands. The hands washed with antibacterial gel were the cleanest, and had very few bacterial growth. My data and observations supported my hypothesis that antibacterial gel is the most effective method of cleaning hands. The surprising findings were that the unwashed hands had more bacteria than the unwashed hands. I infer that additional bacteria was introduced onto the hands by the soap, the faucet or the towel. For future testing, I will have to do additional testing to compare soap washed hands that are towel-dried vs. air-dried.

Project Number: JLS051

Grade: 6

Title: Growth of a Marigold

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Abstract: I wanted to see if rain, tap, or bottled water would make a difference in how quickly a seed would grow into a plant. I placed 7 marigold seeds into nine 9.3 cm pots. Each day 3 pots were watered with 20ml of specified water. Growth was observed over a 10 week period. Each water produced growth of the seeds. Tap water grew the largest, followed closely by rain, and then bottled. This information can be used for my own planting. I can now investigate the similarities of rain and tap water to see why they were successful in the growth of the marigold.

Project Number: JLS052

Grade: 6

Title: Observation and Preservation

Abstract: My project is on preserving bread using different solutions. All of the bread was preserved, but none of it molded as I expected it to. What I did was dip bread in different solutions and lay them in a plate in two areas. One area was dark and the other was inside of a refrigerator. I observed the bread on a daily basis.

Project Number: JLS053

Grade: 6

Title: How Intelligent are Dogs?

Abstract: I wanted to see how smart dogs really are. I am using 5 different dogs and will put them through a series of tests. One-Is the treat still there? Two-Spatial perception. Three-An obstacle course. I will grade each dog on a rating scale of 1,2,and 3. Compare the results.

Project Number: JLS054

Grade: 6

Title: Hydroponics vs. Soil

Abstract: The purpose of this investigation was to determine if growing plants hydroponically produces taller plants. The hypothesis was that the plants grown hydroponically would be taller. Once all the materials were obtained, the procedures were to plant grass seeds hydroponically and with soil. They were watered every two days for two weeks. When the two weeks ended the hydroponically grown plants grew taller. This happened because hydroponically grown plants are given nutrients directly to the roots. In conclusion the hypothesis was supported by the data.

Project Number: JLS055

Grade: 6

Title: What noncarb. bvg. causes tooth decay?

Abstract: The problem of my experiment is: Which type of non-carbonated beverage causes the most tooth decay? In my experiment, I used seashells, ceramic tiles, and teeth when testing the effect of twelve non-carbonated beverages on them over a three-week period. In the seashell portion of the experiment, lemonade caused the highest percentage of weight loss. In the tile portion of the experiment, lemonade caused the highest percentage of weight gain. In conclusion, my experiment supports my hypothesis that lemonade would cause the most tooth decay because it contains both sugar and citric acid.

Project Number: JLS056

Grade: 6

Title: Game Time For Dogs

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS057

Grade: 6

Title: Amazing Alkalinity!

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Abstract: The purpose of this experiment was to measure how contact with different types of soil changes the pH of water as the water passes through the soil. I hypothesized that the pH level in different types of soil would cause a significant change in the pH level of water passing through a particular type of soil. I had thought this because the pH of water is neutral and different types of soil have different pH levels. I thought the information gained from completing this experiment would be beneficial to avid gardeners!

Project Number: JLS058

Grade: 6

Title: The speed of acid pain killers

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS059

Grade: 6

Title: What solution will cause mold to grow the best?

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS060

Grade: 6

Title: Growing Seeds in Soils

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS061

Grade: 6

Title: CO₂: Good or Bad?

Abstract: The purpose of this experiment was to see if increased levels of carbon dioxide would increase bean growth. I planted 14 beans and placed them in two separate tanks. Everyday one tank would receive one squirt of carbon dioxide, the other two. I kept notes in the progress and when they were done growing, I measured them. The tank that received more carbon dioxide grew more in length and grew more leaves on average and weighed three grams more. I can conclude that bean plants are able to grow better with increased levels of carbon dioxide in the air.

Project Number: JLS062

Grade: 6

Title: Compressed Or Not Compressed?

Abstract: The purpose of this experiment was to measure the compaction of different soil types. I wanted to show that there was a direct relationship between soil types collected and the soil compaction of those types. I came up with this project idea because the soil in western Pennsylvania can be very loose in one area to clayish in another.

Project Number: JLS063

Grade: 6

Title: Hydroponics

Abstract: The purpose of the experiment was to see what liquid causes grass to grow the tallest. Two cups were filled with two hundred and fifty milliliters of each liquid. Then one teaspoon of grass seed was put in each cup. Next the cups were put on the kitchen windowsill. Everyday they were moved down a space on the windowsill so that each received equal amounts of sunlight. Every two days their growth was charted in centimeters. After the two weeks they were emptied. The cups with water grew the tallest grass over the two-week period.

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Project Number: JLS064

Grade: 6

Title: Get a Grip

Abstract: The title of my science fair project is Get a Grip. I wanted to know if there was an easier way to help people with rheumatoid arthritis open medicine bottles. I chose this as my question and my project because I noticed that my grandmother struggled opening her medicine bottles. My hypothesis was when comparing a person with arthritis in their hands and a person without arthritis, I predict that the person without arthritis would open the medicine bottles faster. My procedure involved one person with arthritis and one without arthritis in their hands. Nest flip-top and childproof medicine bottles were used. Each person was timed when opening and removing pills. Data was recorded. I observed the person with arthritis struggled more than the other person. Time increased for the arthritic person when opening the flip-top and decreased for the childproof. The non-arthritic persons test time decreased with each bottle. In conclusion, there are many helpful aids for the arthritic person when opening medicine bottles, but no cure.

Project Number: JLS065

Grade: 6

Title: Plants

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS066

Grade: 6

Title: The Light of Life

Abstract: The purpose of this experiment is to find what color of light makes lettuce plants grow the best. My hypothesis was that the plants under the white light would be the tallest and healthiest because white light most closely resembles sunlight. I germinated Bibb Lettuce seeds under five differently colored lights for 26 days. I learned that the yellow lighted plants were the tallest, but their stems were so skinny they may not be able to support long term growth. The blue and green plants appeared to be the weakest, probably due to lack of brightness. The plants under the red light were tall with long leaves. The plants under the white light did not grow as rapidly as the others, but their leaves were clustered so that these plants most closely resembled the shape of full grown head lettuce.

Project Number: JLS067

Grade: 6

Title: Does lotion benefit you skin?

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS068

Grade: 6

Title: Rain, River, and Creek Oh My!

Abstract: My project is Rain, River, and Creek Oh My! My problem is which has the highest pH level; river, creek, tap, or rain water. I hypothesized that creek water would have the highest pH level out of all the other types of water. First collect water samples. Then test each sample with pH test strips. Record data. In my conclusions I learned that river water had the highest pH level.

Project Number: JLS069

Grade: 6

Title: How much salt from a salt truck can a plant withstand?

Abstract: Please visit exhibit for student's abstract.

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Project Number: JLS070

Grade: 6

Title: How Dirt Samples Effect Plant Growth

Abstract: I completed this experiment to determine if the microorganisms in garden soil can be hurting the growth of herbs. I baked soil from my garden in the oven and then planted an equal number of basil seeds in the baked soil and the original soil. I gave each of them equal amounts of water and light every day. I have notes and pictures taken during the plants' growth. My conclusion from this data and the actual plants is that the microorganisms in my garden soil lessened the growth of the basil, and the plants planted in the baked soil were healthier.

Project Number: JLS071

Grade: 6

Title: Oh Christmas Tree

Abstract: My question was will adding various ingredients prolong the life of your Christmas tree. My hypothesis was the aspirin will prolong your Christmas tree the best, and the bleach will do the worst.

My procedure consisted of mixing the solutions, cutting healthy branches, and placing them in glass bottles. I observed that the aspirin branch had lost the most amount of the needles. The tap water branch had lost less than a fourth of its needles. I concluded in my project that the bleach had lost the most needles. The tap water was the best.

Project Number: JLS072

Grade: 6

Title: Is Miracle Grow Cost Effective?

Abstract: In my experiment, I grew bean plants in foam disposable cups filled with peat moss. The plants were put in a fish tank with a grow light. I varied the concentrations of Miracle Gro solutions and water. I recorded the plants' growths over a 2 week period and made a graph of the data. I found that Miracle Gro's recommended dose is cost effective (the actual cost was around \$0.35 per 2 gallons of water). I also found that water alone did just as well as the recommend Miracle Gro solution.

Project Number: JLS073

Grade: 6

Title: Hydroponics

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS074

Grade: 6

Title: Testing the Five Second Rule: Does Bacteria Accumulate on Dropped Food at Five Seconds?

Abstract: My project was done to determine if bacteria would accumulate on dropped food at five seconds. I dropped food samples on the floor and picked them up after five seconds. I transported all of the specimens to a microbiology laboratory. Under the microscope, after Gram staining, all of the samples and one of the controls had bacteria. The results show that bacteria does accumulate in five seconds so it may be harmful to eat food that has been dropped. Samples which were placed on the agar plates grew bacteria, which could, in future projects, be identified as pathogenic or not.

Project Number: JLS075

Grade: 6

Title: The Stroop Effect

Abstract: Color surrounds us, everywhere we look. I wanted to test the theory of the "Stroop Effect" which states it takes longer to say the color that a word is printed in, compared to the time

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it takes just to read the word. I made 16 index cards each with a color word printed in another color. (red printed in blue ink) I then timed my subjects first reading the words, then again just stating the word color. I found that most subjects read the word faster than stating the color.

Project Number: JLS076

Grade: 6

Title: Do Sound Waves Effect Plant Growth?

Abstract: They say classical music makes people smarter and I wanted to see if it made a difference with plants, The purpose of my experiment is to see what plant gets healthier with classical or hip-hop music. The procedures I used are: Step 1: I watered them at the same time each day. Step 2: I put different music on each plant for a couple of hours each day, but made sure plant A (with classical music) couldn't hear plant B's music (with hip-hop music) Step 3: I kept a record on how much healthier a plant got in one week or if it just stayed the same. Plant A with the classical music was healthier and greener than plant B with hip-hop music. On the other hand plant B became brown and it was falling over.

Project Number: JLS077

Grade: 6

Title: How will plants grow differently when exposed to different amounts of light?

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS078

Grade: 6

Title: FIZZY!

Abstract: The purpose of this experiment was to determine if different types of soda had different pH levels. I became interested in this experiment when studying pH levels in science. I hypothesized that Coca – Cola would have the lowest pH level. I based my hypothesis on the fact that Coca – Cola fizzed the most when drank. Of course, I love soda so the project was fun to complete!

Project Number: JLS079

Grade: 6

Title: What Helps Transpiration?

Abstract: My experiment was to find if different lighting affects transpiration. I halved plastic bottles, filled the bottom with soil, added one of two plant species, and 60ml of water to each. Then placed them in three light sources. After six hours, I measured transpiration; and repeated procedure. I found that plants in sunlight transpired the most; household second; florescent was the least. My hypothesis was correct; I supported my idea by measuring transpiration for sunlight. I learned that sunlight was the best to use for transpiration. An improvement could be to test more plants. This project is useful because transpiration is needed for healthy plants.

Project Number: JLS080

Grade: 6

Title: The Decomposinator

Abstract: Please visit exhibit for student's abstract.

Project Number: JLS081

Grade: 6

Title: Hair Raising Results

Abstract: The purpose for my project "Hair Raising Results" is to see which chemical service is the most damaging to hair. I applied the chemicals to the hair, for the directed amount of time, rinsed or shampoo it out and dried. Then, I looked under a microscope to determine how much

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damage, if any, there was. After doing the experiment I saw that the bleached hair had little damage, colored hair had almost none, straightening had the most and perming had a lot, but not as much as the straightening . In conclusion, I found permanent straightening is the most damaging.

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Project Number: JCS001

Grade: 6

Title: Marvelous Markers

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS002

Grade: 6

Title: Fresh Food

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS003

Grade: 6

Title: Testing Battery Life

Abstract: This investigation was to determine which brand of batteries last the longest and which are the most cost effective. The hypothesis stated if different brands of batteries are placed in flashlights, the most expensive battery will last the longest because it is made from better materials. Different brands of batteries were placed in flashlights to determine how long they were able to power the flashlight. Duracell powered the flashlight the longest followed by Energizer, Eveready, Ray-O-Vac, and then Giant Eagle brands. The most expensive brands did last longer, but the results showed that the inexpensive batteries were more cost effective.

Project Number: JCS004

Grade: 6

Title: Different Method, Different Potato

Abstract: My project asks the question of whether or not the taste of a potato differs based on the way you cook it. My hypothesis is that I think the taste of a potato will change based on the way you cook it because in some types of cooking you add water and sometimes only heat is applied and that might have an impact on its taste. After all that experimenting I can come to a conclusion that the taste of a potato does change based on the way you cook it.

Project Number: JCS005

Grade: 6

Title: Cookie Cushions

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS007

Grade: 6

Title: To grow or not to grow

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS008

Grade: 6

Title: Is Your Toothpaste the Best?

Abstract: The purpose of this experiment was to decide which toothpaste worked the best at removing stains. I wanted to know if the expensive brands really did work the best. I hypothesized that Crest Vivid White Night Toothpaste would remove the stains the best because it was a more expensive brand. I wanted to help others decide on a brand of toothpaste to buy for its retail cost.

Project Number: JCS009

Grade: 6

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Title: Absorbent?

Abstract: I use paper towels everyday at home and see the commercials about paper towels always on television. My purpose for completing this project was to determine which paper towel brand would result in being the most absorbent. I hypothesized that Bounty Paper Towels would be the most absorbent. I wanted to figure out if it was truly, "...the quicker, picker upper".

Project Number: JCS010

Grade: 6

Title: Popcorn Fever!

Abstract: The purpose of my experiment was to determine which brand of popcorn popped best in the microwave. I also added another variable to the project idea; I would place the popcorn bags in three different temperatures. For 24 hours, the popcorn bags sat in a freezer, next to a heater, and in room temperature. I had hypothesized that the different brands left in three different temperature settings, would change the number of popcorn kernels popped. Out of all the brands I tested, I thought Orville Redenbacher would be the best overall because of its reputation. I hoped to determine which brand produced the most kernels and where I could store my bags of popcorn.

Project Number: JCS011

Grade: 6

Title: What type of candle burns faster?

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS012

Grade: 6

Title: Soak It Up

Abstract: I did this project to see if spending more money on sponges is worth it. In my project this is what happened. First I made sure that every sponge was six grams and every day I would do two tests. One of the most important facts that I learned was that size doesn't matter, but price does. My results did not support my hypothesis because the more expensive sponges absorbed more than the less expensive sponges. I thought that the less expensive sponges would absorb more, but the more expensive sponges absorbed more.

Project Number: JCS013

Grade: 6

Title: Erase with the best

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS014

Grade: 6

Title: Apply, Dry, Snap!

Abstract: I wanted to know what glue will hold the most weight for future reference. Also, to know where to put the weight for the glue's maximum hold. I put the weights on the wood to see which could hold the most weight. With the weights on the outside/ inside, Krazy Super Glue = 27.2kg/40.8kg, Elmer's Wood Glue = 13.6kg/36.3kg, Elmer's School Glue = 4.53kg/36.3kg, and Beacon's Rubber Cement = 0.0/0.0. Yes, they do differ in strength with Krazy Super Glue being the strongest. Yes, it does matter where you put the weights.

Project Number: JCS015

Grade: 6

Title: Why does a banana take so long to turn black?

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Abstract: Please visit exhibit for student's abstract.

Project Number: JCS016

Grade: 6

Title: Potatoes and their tastes

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS017

Grade: 6

Title: Fast Acting Relief

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS018

Grade: 6

Title: How to get more life out of your tennis balls

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS019

Grade: 6

Title: Pop Goes the Enamel

Abstract: I always wondered what drinking all those cans of pop was doing to my teeth. The purpose of my project was to help figure out the effects of pop on teeth enamel, and which pop was worst for my teeth. My procedure was measuring the pH level of each pop, recording the results, measuring and recording the width of each baby tooth, placing a tooth in each kind of pop for three weeks, and observing the teeth on a weekly basis. The results showed that Dr. Pepper had the worst effect on enamel. The conclusion I came to was that all kinds of pop negatively affect teeth enamel.

Project Number: JCS020

Grade: 6

Title: Sweet Truth - Satisfying Candy Bar

Abstract: The purpose of my experiment is to find out which candy bar, 3 Musketeers[®], Butterfingers[®], or Snickers[®], is the most satisfying. I had my volunteers taste the three candy bars, and then I asked my test subjects two questions regarding taste and texture. Test subject one liked the flavor, but not the texture of all three candy bars. Test subject two did not like the flavor, or texture of both candy bar A and B, but he liked the flavor and texture of candy bar C. So, I concluded that candy bar C, Snickers[®], was the most satisfying.

Project Number: JCS021

Grade: 6

Title: Which Candle Is The Best

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS022

Grade: 6

Title: Hot or Cold?

Abstract: The purpose of my experiment was to determine if colored ice cubes would keep Sprite cooler than a regular ice cube. After coloring ice 6 different colors, I placed 1 ice cube in each glass. After 35 minutes, all ice cubes were melting at the same rate, including the non-colored ice.

Project Number: JCS023

Grade: 6

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Title: Bar Soap Meltdown

Abstract: The purpose of this investigation is to determine which bar soap melts the fastest Dial, Coast, Irish Spring, or Lever2000. The following procedures were used: obtaining all materials, equipment setup, and the testing of the soaps by putting them through the controlled melting process. These steps were repeated three times for each of the four brands of soap. The results were Coast 4th with an average of 85hrs, Irish Spring 3rd with 97hrs, Dial 2nd with 152.33hrs, and in 1st Lever2000 with 173.67hrs. The conclusion was that people should buy Lever2000 bar soap since it last longest.

Project Number: JCS024

Grade: 6

Title: Life Is Sweet

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS025

Grade: 6

Title: Battling Batteries

Abstract: The purpose of my Science Fair Project is to determine which one of the following four name brand batteries will last the longest, Duracell, Energizer, Heavy Duty or Rayovac. I feel with my past experience when purchasing batteries that Duracell seems to have the best performance out of all four batteries. A chemical reaction produces the electrons. Electrons collect on the negative terminal of the battery. I think that Duracell batteries will last the longest because I have always had longer running time with them.

Project Number: JCS026

Grade: 6

Title: What Detergent Cleans Grass Stains the Best?

Abstract: The purpose of this investigation was to find out which detergent cleans grass stains the best. The investigator tested Tide-to-go, Shout, Oxi-clean, and Cheer. He took 5 pieces of fabric of equal size. He made a grass stain of equal size on each of the 5 pieces of fabric. He then cleaned each stain using each of the 5 cleaners according to the manufacturer's recommendation. He then used a grading scale to rate the cleanliness of the fabric after cleaning. He concluded that Cheer was the best at removing grass stains.

Project Number: JCS027

Grade: 6

Title: Clean Teeth, Maybe So, Maybe Not!

Abstract: The purpose was to find out if xylitol lowers the % of sugar in gum. The procedures used were weigh the unchewed gum, chew it for 10 min. to remove sugar, weigh it again, find the difference, find the ratio, and finally find the % of sugar. The data after the steps is Doublemint-about 66%, Bubblicious-about 56%, Trident-about 44%, Stride-about 42%, Orbit-about 52%, and Ice Breakers-about 60%. The conclusion is xylitol in most types gum does lower the percent of sugar in the gum.

Project Number: JCS028

Grade: 6

Title: Is Greener Cleaner? The Dirty Truth about Hand Soaps

Abstract: I decided to do my project because some scientists think that antibacterial soaps may lead to antibiotic-resistant bacteria. So I wanted to see if a natural soap would clean my hands better than regular or antibacterial soap. I touched two common household items that typically contain bacteria – ground beef and paper money, and then I washed my hands with each of the soaps, swabbed my hands, and

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made a culture from each. Based on the quantity of bacteria observed, I have concluded that the natural soap performed better than the antibacterial and regular soaps.

Project Number: JCS029

Grade: 6

Title: Which Stain Remover is Best?

Abstract: This experiment compared stain removers. With eight stains, and T-Shirts I conducted the experiment. I rubbed the stains in, and let the shirts sit for one hour. Then I put 1ml of stain remover on each stain, the first time and 3ml the second time. I put the shirt on a 10 minute wash cycle, and a 30 minute dry cycle, except the last shirt didn't have stain remover. My data concluded OxiClean worked better on the 1ml shirts, but Zout on the 3ml shirts. This didn't support my hypothesis, that Spray N Wash worked better at removing stains on both washes.

Project Number: JCS030

Grade: 6

Title: Power Up

Abstract: My Science Fair Project is on which brand of batteries lasts the longest out of Duracell, Energizer, and Rite Aid. The reason I wanted to do this project is because I use batteries a lot and I wanted to make sure I am buying the right brands. To do this project I bought three flashlights and batteries. I watched the flashlights until they burnt out. Overall, Rite Aid lasted the longest. To make this experiment better, I would have paid more attention to the brightness of the flashlights.

Project Number: JCS031

Grade: 6

Title: Machine for Crushing Cans

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS032

Grade: 6

Title: My Cookie Experiment

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS033

Grade: 6

Title: Clean With Me

Abstract: I did a project on which carpet cleaner works the best. I chose four items to compare. I chose this project so that my mom doesn't have to waste money. I tested each cleaner on separate stains on the same kind of carpeting. I compared the stains after the carpet cleaner was applied.

Project Number: JCS034

Grade: 6

Title: Splish,Splash In The Wash

Abstract: We use washing detergent all of the time. I did this project to see which laundry detergent works the best at getting stains out. I used four different brands of laundry detergent on ketchup stains. I applied the ketchup onto different pieces of the same material. After they dry, I will wash them in each brand, then compare results.

Project Number: JCS035

Grade: 6

Title: Storage Bag Fresh

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Abstract: I will be testing four brands of storage bags to see which one will keep a carrot the freshest. I will compare crispness, taste, and any decay.

Project Number: JCS036

Grade: 6

Title: Paper Glider Flight

Abstract: Please visit exhibit for student's abstract.

Project Number: JCS037

Grade: 6

Title: Drain Out The Stains!

Abstract: My purpose for the experiment was to find out what detergent works better. The detergents I used were Purex and All. The procedures I used were to put chocolate stains on a white t-shirt. I put the detergents directly onto the stains. I then scrubbed them in a circular motion on each stain with a small brush. I then ran them through the washing machine for 1 cycle and compared the 2 stains. The conclusion showed that the ALL removed more the stain than the Purex. The experiment was repeated a few times.

Project Number: JCS038

Grade: 6

Title: Dyeing Dilemma

Abstract: Washing fabric is a daily part of an average adult's life. I did this project to learn if one fabric bleeds more dye than another when washed multiple times. Three different fabrics were washed 5, 15, and 25 times to learn which fabric bleeds the most when washed. It was determined after examining my fabrics that after 25 washings, the cotton/polyester blend bled the most. My research suggests that the reason this is, is that polyester, being a synthetic material didn't take the dye well, so it didn't hold it well either. This project could be very useful in life to many people.

Project Number: JCS039

Grade: 6

Title: Second to None Dish Soap

Abstract: I came up with this topic after having a conversation with my mom. While washing dishes, I asked her which type of dish soap worked the best, and she said she had always used and liked Dawn. I decided to find out which dish soap really did work the best. I hypothesized that Dawn would work the best because of mom's reaction about it. I was wrong. Actually, after completing my experiment, I found that Palmolive worked best at removing dried oatmeal off of the plates!

Project Number: JCS040

Grade: 6

Title: Power to the Wii

Abstract: The purpose was to determine which batteries worked better in the Nintendo Wii remote control. The two types of batteries used were rechargeable and disposable Energizer. The procedure used was putting the batteries in the remote controller and using it until the batteries ran out. If they did not run out the total time of use was measured and recorded. The result was the disposable batteries did not run out and still had a 75% charge remaining. The rechargeable batteries only worked for 14 hours. The results mean if you are choosing batteries the disposable type are a better choice. The results of the test seem to support the hypothesis that disposable batteries were a better choice than rechargeable batteries. I learned the disposable batteries worked better than the rechargeable batteries. The project relates to everyday life when deciding what type of batteries to buy. If you use your Nintendo Wii everyone once in a while, disposable batteries may be a better choice because they last a long time.

Project Number: JCS041

Grade: 6

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Title: You Crack Me Up

Abstract: The purpose of my experiment is to see which packaging material works the best. For my experiment, I placed a hard-boiled egg inside of a box with no protection and dropped it three feet. I then counted the number of cracks on the egg. I repeated these steps for each of my packaging materials: bubble wrap, air tubes, shredded newspaper, and foam peanuts. The egg placed in the box with no protection had 59 cracks, the bubble wrap had 35 cracks, the air tubes had no cracks, and shredded newspaper had 56 cracks. The air tubes worked the best.

Project Number: JCS042

Grade: 6

Title: What Type of Salt Melts the Most Ice?

Abstract: The purpose of this experiment was to see what type of salt melts the most ice. The hypothesis stated that rock salt would melt the most ice in three minutes. I sprinkled various types of salt on ice and recorded the amount it melted. Calcium chloride melted the most ice, and sodium chloride melted the least. The hypothesis was not supported.

Project Number: JCS043

Grade: 6

Title: Is your Mouth Really Clean?

Abstract: The reason why I did this project is because I was that if Listerine really is as good as the commercials say it is. First, I grew the bacteria using my materials. Seven days later, I bought my mouthwash and added 1.5ml to every bacteria sample. Then, I took notes every 10, 15, 20, and at the stopping point, 30 min. Results indicate that Scope did kill the most bacteria faster than Listerine did. So my hypothesis that said Listerine would kill the most bacteria, should be rejected.

Project Number: JCS044

Grade: 6

Title: A Popping Problem

Abstract: People get annoyed when they are eating popcorn and they bite into a hard kernel. I wanted to test different brands of popcorn to see which popcorn has the least unpopped kernel. I popped each brand that I tested and counted the unpopped kernels. Then I compared the results.

Project Number: JCS045

Grade: 6

Title: Power the Lights: Battery Tests

Abstract: The purpose of my experiment is to find out which AA alkaline battery lasts the longest and has the best value. I bought four different brands of batteries and started them at the same time in identical new flashlights with new bulbs. I watched the flashlights over a few days turning them off and back on after a period of time. Panasonic took 5 hrs 35 min, Energizer 5hrs 50 min, Duracell 5hrs 52 min, and Rayovac with the time of 7 hrs 55 min. Because it lasted the longest and has the second best price, I would consider Rayovac to have the best value.

Project Number: JCS046

Grade: 6

Title: Which Dishwasher Soap Works the Best?

Abstract: The purpose of this investigation was to determine which dishwasher soap cleans dishes the best. The investigator tested Cascade, Electrasol, Palmolive and a home made remedy made of borax and baking soda. The investigator placed 15mL each of ketchup, mustard and bbq sauce on a plate and allowed the stains to set for 12 hours. The dish was then washed in the dishwasher using Cascade. A rubric was used to judge the cleanliness of the plate. The procedure was repeated for the three other cleaners. Results indicated that Electrasol cleaned the plates the best.

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Project Number: JCS047

Grade: 6

Title: What Brand of Gasoline Gives Your Vehicle Better Mileage?

Abstract: The purpose of this investigation was to determine what brand of gasoline gives your vehicle better mileage. The investigator had his dad fill up his vehicle with Sunoco gasoline at the beginning of the week. The mileage was recorded. After the gas gauge was exactly at the E, the mileage was recorded again. The procedure was repeated for Getgo and Sheetz gasoline. After the data was analyzed, the investigator concluded that Sunoco gasoline allowed for the best mileage.

Project Number: JCS048

Grade: 6

Title: Do You Know What You Are Drinking?

Abstract: I conducted pH tests of milk, water, coffee, orange juice, lemonade, and Diet Pepsi to determine which beverages were the most acidic and therefore the most harmful to tooth enamel. I used Litmus paper strips to test the beverages and then compared them to the pH scale provided with the papers. The pH values were milk, 7; water, 5; coffee, 4; orange juice, 5; Diet Pepsi, 4; lemonade, 1.5. Although I originally thought that Diet Pepsi would have the lowest pH, my experiment revealed that lemonade had the lowest pH. Consuming lemonade on a regular basis could potentially damage teeth.

Project Number: JCS049

Grade: 6

Title: Diaper Absorbency

Abstract: The purpose of this investigation is to determine which brand of diaper is the most absorbent. The diapers used for this investigation were Huggies, Pampers, and Luvs. The procedures followed were, pour water into the diapers tested, and record the amount absorbed by each diaper. The results of this investigation indicated that Huggies absorbed more water than either of the other brands. Therefore, families that have babies that are still using diapers should buy Huggies diapers because they absorb the most water and their baby would be more comfortable.

Project Number: JCS050

Grade: 6

Title: Sum of a Gum!

Abstract: I find bubble gum to be irresistible! I love to chew it, and I know many others do as well. Based on this, I wanted to determine which type of bubble gum would produce the biggest bubble. I thought that if you had a thinner, harder piece as in Bazooka, it would not yield the best results. Hubba Bubba, on the other hand, would produce the best results because it was thicker and softer to chew. Hubba Bubba did produce the biggest bubble!

Project Number: JCS051

Grade: 6

Title: Perfect Paper Towels

Abstract: Please visit exhibit for student's abstract.