



70th PITTSBURGH REGIONAL SCIENCE & ENGINEERING FAIR

JUNIOR DIVISION PROJECT ABSTRACTS

APRIL 3, 2009

JUNIOR DIVISION – PHYSICAL SCIENCE

Project Number: JPS001

Grade: 6

Title: Powder Power

Abstract: I will test and measure muffins with different amounts of baking powder for height and texture.

Project Number: JPS002

Grade: 6

Title: Was Forrest Gump Right?

Abstract: "Life is like a box of chocolates...you never know what you're gonna get..." Using statistical analysis, I will prove Forrest Gump's Chaos theory to be correct. In this project, I sorted M&M's of one bag by color. I then counted each separate color and repeated the process for six bags total. While counting each bag of M&M's, I found the frequency and distribution of each color to be significantly different in each bag. My data shows that my hypothesis was supported. I learned that when M&M's are packaged, the frequency and distribution of different colored candies is purely random.

Project Number: JPS003

Grade: 6

Title: Burn, Baby, Burn

Abstract: My project is called "Burn Baby Burn". I decided to do this project on which colored candle, (white, red, and purple) would burn the quickest. I decided to test this because I think candles smell and look pretty. I purchased three white candles, three red candles, and three purple candles. I also purchased a lighter and a stopwatch. I timed the length of time that each candle burned before going out. I did three tests for each color candle, and in the end the purple candle lasted the longest.

Project Number: JPS004

Grade: 6

Title: Static and Dynamic Stretching

Abstract: I chose as my topic the effects of static and dynamic stretching on a 100-yard dash time. There are two types of stretching. There is static. Static stretching is where you told a stretch for around 15 counts. An example of this would be the sit and reach stretch. The other type of stretch is dynamic stretching. Dynamic stretching is performing movements. An example is walking lunges. I plan on sharing my results with the world.

Project Number: JPS005

Grade: 6

Title: Physics and Dynamics of Archery

Abstract: The purpose of my experiment is to see which arrow of will have the most force. Procedures used were the shooting arrows multiple times. I measured how far each arrow went in on the closest area of the pen. I then tallied the results.

Project Number: JPS006

Grade: 6

Title: Friction of an Air Hockey Puck

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Abstract: I enjoy playing air hockey and decided to figure out what puts more friction on an air hockey puck. I simulated an air hockey table using a masonite sheet and tested the following friction variables: weight of puck; size of holes; and number of holes with a controlled air flow. My control was a 1/16" hole that was 1" apart. I tested what angle the board was at when the puck first started to move. I found that the control had the least friction because the angle of the board was the lowest for the puck to move.

Project Number: JPS007

Grade: 6

Title: Electromagnetic Force

Abstract: Electromagnets are not something we frequently use in our everyday lives. I wanted to test if electromagnetic force would change by using different volts of batteries. I wanted to see if the different volts of batteries changed the amount of electromagnetic force. I used different volts of batteries along with using a thin wire, a ten penny nail, a direct current knife switch, electrical tape, masking tape and paper clips. These items were connected together to create the electromagnet force which was then measured by the number of paper clips that were able to be held magnetically by the nail.

Project Number: JPS008

Grade: 6

Title: Which Candle Burns the Longest?

Abstract: The purpose of this project was to find out which candle would burn the longest and determine the affect the environment would have on it, if any and what would be the factors in the longest burning candle and therefore, be more economically.

Project Number: JPS009

Grade: 6

Title: Does Temperature Affect the Distance of Travel?

Abstract: The reason I did my project is because I personally enjoy football so I decided to see if temperature affects the distance of travel in a football. I first built a catapult with my Dad's help. Then I stored three identical footballs at different temperatures for a certain time period. I then placed them in the catapult, released it and measured how far the ball traveled. I repeated the test two more times and graphed the results.

Project Number: JPS010

Grade: 6

Title: Most Absorbent Sponge

Abstract: I wanted to find out which type of sponge was the most absorbent. In a plastic container, I put 170ml of water and then inserted a 3cm X 3cm car wash sponge, sea sponge, and a dish sponge. I left them in the water for 30sec, then for 1min, then for 1min and 30sec. I recorded how much water each sponge absorbed. I collected data and graphed my results.

Project Number: JPS011

Grade: 6

Title: What Blocks A Wi Fi Signal?

Abstract: A lot of people depend on Wi Fi, to use a laptop around their house. This project tests to see what items can block a signal and prevent you from using the computer. Materials

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such as books, people, and boxes were placed around the PC to try to block the signal. The only thing that really affected the strength of the signal was distance.

Project Number: JPS012

Grade: 6

Title: Fuel Efficiency

Abstract: I really love riding my quad and always want to get good gas mileage. So I thought why not test the different octane levels to see which would give me the best mileage. First, I purchased 87 octane, 91 octane. And 93 octane gas. I had separate containers for each type. I used a large industrial park for my tests. I then traveled at 20 mph until I ran out of gas. I tested each octane type two times. I collected running time data and made graphs.

Project Number: JPS013

Grade: 6

Title: Which Salt Freezes First?

Abstract: For my science fair project I did Which Salt Solution Freezes First? I prepared 5 common salts. I did this to see if salts freeze. To conduct this experiment I first put one Teaspoon in a cup. Next, I put them in a freezer for 15 minutes and then checked. The results were very different than I expected. I think next year I will see what Temperature they freeze at.

Project Number: JPS014

Grade: 6

Title: What's Hot and What's Not?

Abstract: I wanted to find out what fabric type had the best insulative properties. I purchased 6 different fabrics. Based on my research and observations, I believed fleece would be the best insulator and taffeta would be the worst. To test this, I went outside and recorded the temperature. Next, I put a room-temperature thermometer into a room-temperature fabric and took it outside. Then I recorded how long it took the thermometer to match the outside temperature. The longer it took, the better insulator the fabric was.

Project Number: JPS015

Grade: 6

Title: Does hot or cold temperature affect how a magnet works?

Abstract: I will see how the different temperatures will affect how the magnet attracts the paper clips. I will learn if temperature does or does not affect a magnet's magnetism. I will do it by heating the magnet in an oven and cooling the magnet in the freezer. I think that temperature will not affect how the magnet attracts paper clips.

Project Number: JPS016

Grade: 6

Title: What fabrics can protect fragile items?

Abstract: My project is called "What fabrics protect fragile items from breaking?" My fragile items are going to be eggs. The reason why I did it is because so that I can know what fabrics protect eggs from breaking. This is how I did it. First I will get all of my materials and wrap one egg into each fabric. Next, I will drop all of the eggs from the counter one by one and see the reaction.

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Project Number: JPS017

Grade: 6

Title: Frost Bite

Abstract: I decided I would do this project when I went outside one snowy day. I wondered which fabric would retain the most heat. I obtained the 5 fabrics that I need: Under Armour, Fleece, 100% cotton, Polyester, and Felt. I cut the fabrics in the same length and width, placed it on a piece of wood, turned the light on and waited 5 minutes. I recorded the temperature. I repeated this with the light off. After I recorded all my data and performed each experiment 3 times, I made graphs. In conclusion, my hypothesis was incorrect. The Polyester fabric kept the heat in the most.

Project Number: JPS018

Grade: 6

Title: Soak Up The Sun

Abstract: Solar energy is growing interest and I wanted to find practicable ways to use this resource. A person would place a sheet of interfacing in between a light and a solar panel. The person would keep placing sheets of the fabric until the fan stopped. An observer would record the speed of the fan. My results showed that if you have more clouds and less sunlight, the solar panel wouldn't have as much power. My project taught me that solar panels work best in maximum sunlight and clouds reduce the power of a solar panel.

Project Number: JPS019

Grade: 6

Title: All Shook Up to Make Light

Abstract: wanted to prove I could make an electrical current with a magnet and motion. I used a shake /Faraday flashlight based on Faraday's Law of Induction. I attached wires and a meter to the capacitor and measured voltage produced when shook. The data shows current produced by shaking caused higher voltage when shook faster and longer. The current produced in the coil resulted in stored energy in the capacitor measured as voltage. Shaking for 15 seconds produced approximately 30 minutes of operation. I was able to demonstrate that current was induced in a coil when the magnet passed through.

Project Number: JPS020

Grade: 6

Title: pH Levels of Water

Abstract: I chose this topic is because I have well water at home and I have heard well water is quite acidic. I wanted to find out if this statement was true and discover which water I should use for my drinking water. My hypothesis was if I tested the pH levels of different waters, then my well water would be the most acidic. I used pH paper to test my different samples of water and did each test three times. I recorded, graphed and analyzed data.

Project Number: JPS021

Grade: 6

Title: Kitchen Corrosives

Abstract: The purpose of the experiment is to see which solvent is more acidic. The procedures were to compare the weight and measurement of pumice before and after a solvent was used to see which solvent was more corrosive. The vinegar dissolved the most pumice.

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Project Number: JPS022

Grade: 6

Title: How Temperature Affects Biodiesel Fuel

Abstract: Please visit student's exhibit for the abstract.

Project Number: JPS023

Grade: 6

Title: Fun With Ice

Abstract: I chose to do this project because I wanted to know what is the best choice for melting ice. The experiment requires four 50 mL blocks of ice, 4 one hundred mL blocks of ice and 4 one hundred-fifty mL blocks of ice. Then the experiment calls for a digital timer to find out how long it will take. Then the project requires the ice to be melted by 15 mL's of the following substances. Rocksalt, Calcium Chloride and Morton Salt. The 4th does not need any melting agents for it is the control.

Project Number: JPS024

Grade: 6

Title: Thermal Exchange Test

Abstract: The purpose of this investigation is to see in what temperature of water ice melts the fastest. Water was poured into a graduated cylinder with a plunger base and placed in the freezer, and as soon as it was frozen it was placed in either room temperature, warm, or hot water. The results of this experiment were the following: the room temperature had an average of 9 minutes for warm, and 27 seconds for hot. the conclusion of the experiment is that ice melts fastest in hot water.

Project Number: JPS025

Grade: 6

Title: Plastic Wrap Investigation

Abstract: My procedure was to first gather 3 different brands of plastic wrap and label them. I cut pieces of plastic wrap and taped them on a casserole dish. I took a paper towel roll and put pennies into the roll while it was on the plastic wrap,. Then I recorded the mass of the pennies that broke the plastic. Then I repeated for all the pieces of plastic wrap with three trials each.

Project Number: JPS026

Grade: 6

Title: "Up In Smoke"

Abstract: By using different fabrics, I will determine what type of fabric burns the fastest. The results of this experiment will show what fabric types would be used for contact with fire. I will select 8 different fabrics and burn them in a fireproof pan. While the fabrics of equal size are burning, I will time the process to see how long it takes for each fabric to burn.

Project Number: JPS027

Grade: 6

Title: Different Liquids Melting Ice

Abstract: The purpose of this investigation was to determine which liquid melted ice the fastest. In my experiment I placed ice cubes into ten cups of three different liquids (pepsi,

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orange juice, and tap water), and I let the ice cube melt for 10 minutes. My results were that orange juice melted the most amount of ice, tap water melted the second least amount of ice, and pepsi melted the least amount of ice. My conclusion was that orange juice melted the most ice, out of the three liquids tested.

Project Number: JPS028

Grade: 6

Title: Light Bulb Wattage and Temperature

Abstract: The purpose is to determine if wattages of light bulbs change the temperature in produces. The procedures used were: obtain all materials needed, place forty watt light bulb into light socket , turn light on, and time for fifteen minuets, put thermometer up to light bulb, record temperature, and repeat the procedures for each light bulb. The data from this experiment proves that the hypothesis, light bulbs of different wattages when turned on and left on, will prove that the highest wattage will give off the highest temperature, was correct.

Project Number: JPS029

Grade: 6

Title: Water Hardness and Sud Formation

Abstract: Water hardness is caused by the presence of magnesium and (or) calcium. It is known that one of the affects of water hardness is reduced soap sud formation. The purpose of this experiment was to demonstrate this. Epsom salt (magnesium sulfate) was used to make water hard. Test results showed that as water hardness increased, soap sud formation decreased. This corresponded to what has been reported in the references.

Project Number: JPS030

Grade: 6

Title: Solar Cell Power

Abstract: I did an experiment on whether a solar power can produce more power with a mirror reflecting more light onto the solar cell. We went outside and measured how much the solar cell would produce with and without the mirror. The results were that the solar cell did produce more power with the mirror. My conclusion was that the solar cell did produce more power with a mirror by reflecting more light. A good experiment for next year would be to make my project more high tech with solar power.

Project Number: JPS032

Grade: 6

Title: Now You See It... Now You Don't

Abstract: I wanted to know if colored water would affect the rate of evaporation. First, materials were gathered. Next, four buckets were filled with different colored water - blue, red, yellow, and clear for control. The buckets were filled to make sure that temperature and color were consistent. An ultraviolet light was placed in an enclosed box. Next, four beakers were placed in the box. A 72-hour control trial was run to make sure heat was distributed evenly. Three 72-hour trials were run with four different colors. I hypothesized that the blue would evaporate the quickest because dark colors absorb more heat. My hypothesis was proven correct.

Project Number: JPS033

Grade: 6

Title: Good Vibrations

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Abstract: Because I play guitar, I wanted to learn how a guitar produces sound, and how the length of a guitar string relates to a note's frequency. First, I measured the string length and frequency of every note. Then, I calculated the wavelength and speed. My results showed that the frequencies increased as the guitar string got shorter (as the frets got higher). Also, for each string, the speed of the notes remained constant. In conclusion, sound is produced by the vibrations of the guitar strings when they are plucked. The shorter the guitar string, the higher the frequency (or pitch).

Project Number: JPS034

Grade: 6

Title: Permanot

Abstract: The problem I investigated was which solvent removes permanent marker ink the best. The reason I chose this problem was because I get permanent ink on my clothes and don't know how to get it off. First, I put permanent marker on a piece of cloth. I then submerged it in the solvent. I changed the solvent after each test. Nail polish remover removed the permanent marker the best.

Project Number: JPS035

Grade: 6

Title: Fishing for an Answer

Abstract: The purpose of this project is to make sure the big ones don't get away. I was fishing on a rock in Hatteras, North Carolina and my line broke. That made me start thinking about whether different conditions can affect the strength of fishing line. I tested the breaking point of fishing line that had been in salt water, fresh water and vinegar. My control was no liquid. It was determined from the tests that vinegar made the line weaker. In the future, I would include tests on more line and different lengths of time.

Project Number: JPS036

Grade: 6

Title: Oxygen vs. Candle

Abstract: I chose my project because I wanted to know how long candles would last with added oxygen from a plant. I put a tea light in a storage container and put a plant in too. I started my stopwatch and when the tea light burned out I stopped my stopwatch. I recorded the time and repeated this tests two more times with the same set-up adding an additional plant. I also used a "no plant" set up as my control. I graphed the result to compare which set up allowed the candle to burn the longest.

Project Number: JPS037

Grade: 6

Title: Which Flashlight Battery Lasts Longest?

Abstract: The purpose of this investigation was to determine which battery lasted the longest in a flashlight. The investigator tested the following "D" sized batteries: Energizer, Giant Eagle Pro Power, Duracell, and Dollar General batteries. He recorded the time it took for the batteries in the flashlight to stop working. He concluded that the Energizer batteries lasted the longest at 34.2 hours. The Dollar General batteries lasted the least amount of time at 9.95 hours. The investigator also determined that while they didn't last the longest, the Giant Eagle Pro Power batteries were the most cost effective at \$0.09/ hour.

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Project Number: JPS038

Grade: 6

Title: Can You See Vitamin C?

Abstract: I wanted to know how much Vitamin C was in different types of orange juices because I was curious to see if I could get some more Vitamin C in my daily diet. I made a Vitamin C solution that I found online and added a .25 ml drop of one certain type of orange juice to that solution, repeating the steps until the blue solution became colorless. Fresh squeezed orange juice had the most Vitamin C.

Project Number: JPS039

Grade: 6

Title: Watching Paint Dry

Abstract: In my experiment, I timed how long it took for different types of paint to dry. My hypothesis was that oil-based paint would dry fastest. My conclusion is that I was wrong. The fastest drying paint was lacquer, a water-based paint. To begin, I chose five different types of paint that we had in my house to use for hobbies. They were Richart washable paint, Testors enamel, Rust-Oleum latex, Pactra lacquer and Liquitex acrylic. I drew squares on two non-porous boards, and painted squares with each type of paint. I timed how long it took for each paint to dry by dabbing it with cotton swabs (Q-tips). I repeated the experiment three times for each type of paint, and averaged the results. I found that the paint dried in the following order: Water-based latex (1 min. 33 sec.); Water-based acrylic (2 min. 49 sec.); Water-based washable (3 min. 11 sec.); Oil-based lacquer (5 min. 37 sec.) and Oil-based enamel (12 min. 53 sec.) I was surprised to find out that my hypothesis was wrong. I thought the strong smell of oil-based paints meant that they were evaporating faster. This information is useful to me, because I like to do art projects. Now I'll know to pick a water-based paint if I don't want to spend too much of my time watching paint dry!

Project Number: JPS040

Grade: 6

Title: The Wonderful World of Magnets

Abstract: Please visit student's exhibit for the abstract.

Project Number: JPS041

Grade: 6

Title: Why Waste Heat?

Abstract: Please visit student's exhibit for the abstract.

Project Number: JPS042

Grade: 6

Title: Lighten Up

Abstract: The purpose of my project was to see where apples dry the fastest. My sisters love apples so that gave me the idea. First I took a Crispin Gold apple and placed slices under a 60 watt bulb, a 40 watt bulb, and under no bulb. There is also another question involved; "There is a 50% difference between 40 watt and 60 watt so will there be a 50% difference in the results" In the end, I could not come up with a conclusion for my first problem, but my second question was wrong.

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Project Number: JPS043

Grade: 6

Title: Air and vinegar: What is the effect of vinegar on different fruits?

Abstract: The purpose of my experiment is to find the affect of air and vinegar on different fruits. I found the affect by getting 1/3 cup of vinegar and putting it on ½ of each type of fruit. The types of fruit that I used were apples, grapes and pineapples. Only one of the fruits did what I thought and that was the apple. The vinegar made the apple last a little longer without turning brown. The grape changed form and the pineapple did not change at all. If I did the experiment again I would use lemon juice.

Project Number: JPS044

Grade: 6

Title: Does music really control your heart rate?

Abstract: Does music really controll yor heart rate. What I did was i played 4 diffrent types of music. Then I played them for 1 minute ,and wrote them down. disco was the most effective in increasing the heart rate by 120. jazz deceasd by 78.durring my project i have found out that music really does controll your heart rate.

Project Number: JPS045

Grade: 6

Title: Air Has Muscle

Abstract: Please visit student's exhibit for the abstract.

Project Number: JPS046

Grade: 6

Title: How does the temperture of you hand affect color changing pencils?

Abstract: I choose this topic because to see what temperatures I thought that it would be something unusual. I also did this because I thought that I would research something that I did not know a clue about. I plan on using different temperatures to measure on what color the pencil will change. I plan on taking the temperature of my grandma's hand, my mom's hand, and my own hand. I will change the temperatures of our hands by using hot and cold water. My prediction is that the hot water will work and the cold water won't.

Project Number: JPS047

Grade: 6

Title: The Fruit Saver

Abstract: Does your fruit ever turn brown? Well that probably is true. And you probably also hear about new substances to keep it from turning brown. I've also heard of a lot of substances. So that's what I tested- what keeps fruit from turning brown? I called it the "Fruit Saver". The substances it tested were water, salt water, lemon juice, and Sprite™. I put the substances in four bowls and put pieces of apple in the bowls. Most people thought water would work better because it didn't have any acid but, that wasn't true. Salt water worked the best.

Project Number: JPS048

Grade: 6

Title: Rusting Metal

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Abstract: For my project I tried to find out which metals rust. I got all of my metal at Lowe's. My four metals were steel, stainless steel, galvanized and brass. I also used four liquids water, vinegar, lemon juice and Coke. I put the liquids in baby food jars. I left them there for 5 1/2 weeks. After about 2 weeks you could see the rust appearing on the screws. I then, after the test was over put all the bolts on a piece of poster board for my presentation. The smell of the liquids was horrible. The look of the screws was also disgusting except for the stainless steel which was very clean. So on my presentation board I only had four clean screws.

Project Number: JPS049

Grade: 6

Title: Pop And Pressure

Abstract: The purpose of my experiment was to show whether there were any differences in the carbonation between regular and Diet Pepsi and if altitude affects the measurements of carbonation. At a low altitude, I opened a bottle of regular Pepsi, secured a balloon over the opening, shook it five times, measured the balloon's width, and recorded the results. I performed these steps for five trials using regular, then Diet Pepsi. I repeated the entire process at a high altitude. As I hypothesized, Diet Pepsi was more carbonated than regular and a higher altitude showed a greater measurement of carbonation.

Project Number: JPS050

Grade: 6

Title: The Ups and Downs of Gravity

Abstract: Please visit student's exhibit for the abstract.

Project Number: JPS051

Grade: 6

Title: What is the best way to mummify a hotdog?

Abstract: This project is to try to find the best way out of four ways to mummify a hotdog the best way. I'm doing this because I thought about the Egyptians and how they mummify people when someone dies, so I wanted to see how they do it. In my project, I'm going to use four hot dogs two in baking soda and the other two in baby powder. Then I will put one in the light, the other in the dark, and the other one in the freezer and the last one in the refrigerator. I think that they hotdog in the light will work the best.

Project Number: JPS052

Grade: 6

Title: Candle Melting

Abstract: The purpose of this experiment was to see which way of burning a candle causes it to last longer. The method of burning a candle was tested. Two methods were used on tea light candles. First the wick was lit on a candle. The second candle was placed on a candle warmer. The project was observed for 6-7 hours. The wax burned and evaporated faster on the candle that had the wick lit. The wax of the candle on the candle warmer did not evaporate as quickly.

Project Number: JPS053

Grade: 6

Title: The Dish on Soap!

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Abstract: The purpose of my project is to see which soap can last in hot water the longest. I chose to do this project because my mom always says that when she puts soap in a bathroom, it seems like it melts away quickly. In my procedure I will add soap to water at 40 degrees Celsius and I will stir the water with a mixer for one minute every ten minutes for sixty-one minutes. I add one bar from each brand in the water when I do this. Then I repeat it two more times.

Project Number: JPS054

Grade: 6

Title: Baseball changes w/Temperature

Abstract: The purpose of this experiment was to determine how temperature affects the circumference, weight and height of bounce of different baseballs. Six different types of baseballs were tested. A video camera was used to record the height of the bounce of each baseball when it was dropped from a height of 100cm. Each ball was then heated and cooled. Circumference measurements, weights and height of bounce were measured after heating and cooling. The investigator determined that when the baseball was heated, its circumference was bigger, it weighed less and it bounced higher.

Project Number: JPS055

Grade: 6

Title: Which Material is the Best Insulator?

Abstract: This experiment was conducted to determine which material was the best insulator. Five insulators were used: aluminum foil, cotton, polyester, silk and wool. Experiment was performed by wrapping each glass with insulation, and then boiling water was added to the glass. Temperature was recorded every ten minutes until temperature was 23 degrees Celsius. In the first forty minutes, temperatures dropped drastically, approximately 60 degrees Celsius. Temperatures fell about 2 degrees every ten minutes after. In conclusion, wool was the best insulator. The rest of the insulators reached 23 degrees Celsius by 100 minutes and wool remained at 27 degrees Celsius.

Project Number: JPS056

Grade: 6

Title: Effects of Color on Candle Burning

Abstract: My experiment was done to see if color effects how long a candle burns. This may help when purchasing candles. I burned a white, pink, red, and burgundy candle 4 times using candleholders and lighters for 2 hours. All candles burned between 8.5cm and 7.9cm, so the color had little to no effect of how long the candles burned.

Project Number: JPS057

Grade: 6

Title: Which surface will allow a hovercraft to travel the fastest?

Abstract: I chose to create a hovercraft because they are so fascinating that I wanted to build one myself. I created it by using a kit I got from the high school physic teacher. I hypothesize that the hovercraft will best run on water based on my research.

Project Number: JPS059

Grade: 6

Title: Which Metal Conducts The Most Heat?

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Abstract: The purpose of this investigation is to determine which type of metal conducts the most heat. I put all the metals in the fridge then put them over a candle and measured the temperature with a heat laser. I found that each metal was made with different elements. Aluminum conducted the most heat.

Project Number: JPS060

Grade: 6

Title: Egg Floation

Abstract: The purpose of this experiment was to see what kind of eggs float in what kind of water. Hard cooked and uncooked eggs were placed in tap, purified, and salt water. Data was collected on whether they sank or they floated. Both types of eggs floated in the salt water. Both eggs floated in the middle of a mixture of salt and tap water.

Project Number: JPS061

Grade: 6

Title: Resonance of different liquids in a glass cup

Abstract: Please visit student's exhibit for the abstract.

Project Number: JPS062

Grade: 6

Title: Gumdrops Hold Goliath Weight

Abstract: I wanted to prove that weak materials could be made strong through structural engineering. This project interested me because I love building things. My information came from the computer, books, and professional advice. I used marshmallows/spaghetti to find a strong shape, and toothpicks/gumdrops to build strong structures. I had great success supporting my hypothesis. I learned that combining many smaller structures were stronger than one large structure. The triangle/pyramid shapes were the strongest. My results showed that toothpicks/gumdrops could hold more weight than I imagined. Weak materials could definitely be made strong when used together.

Project Number: JPS063

Grade: 6

Title: Can You Make Fabrics Fireproof?

Abstract: The purpose of my project is to determine if cotton and polyester can be made fire proof. My procedures are put alum on fabric and then burn until a fabric ignites. Then see how long it takes for the other fabric to ignite. My results were, vtreated cotton did not burn, it discolored , and treated polyester took 15 minutes for a complete burn.

Project Number: JPS064

Grade: 6

Title: Which OJ Contains the Most Vitamin C?

Abstract: The purpose of this experiment was to determine which orange juice had the most vitamin C. Three types of orange juice were tested. Drops of OJ were added to an iodine/starch solution. The number of drops needed to turn the solution clear was recorded. The OJ that took the fewest drops to turn the solution clear was considered to be the one with the most vitamin C. The investigator concluded that Florida's Natural orange juice contained the most vitamin C.

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Project Number: JPS065

Grade: 6

Title: Stop and Stain

Abstract: I did a project on which brand of deck stain is the strongest. I did this project because I have a large deck and I was curious because my deck paint is chipping off. First, I got all of my materials at Lowe's. Then, I got three slabs of wood and painted one with each brand. Then, I rubbed each one with sand paper to represent wind and dirt. Then, I rubbed each one with a wet sponge to represent rain. Then, I got my conclusion, and in my conclusion Cabot was the best brand.

Project Number: JPS066

Grade: 6

Title: Warm Me Up

Abstract: The title of my science fair project is "Warm Me Up". The purpose of this project is to test the effectiveness of various forms of insulation, see which would retain the highest level of heat, while serving the best at body warmth. The hypothesis was wool would retain the most heat. Start with seven jars of water at a temperature of 37 degrees C. Materials, consisting of wool, flannel, human hair, thermal, cotton, and feathers surrounded each jar and a thermometer placed inside. Seventh jar was a control. The temperature was recorded every fifteen minutes. The first trial, thermal held the most heat, the second, wool and thermal tied, and third, cotton. In conclusion, the hypothesis was partially correct, wool having a crimped fabric, retained air, causing heat retention.

Project Number: JPS067

Grade: 6

Title: How Does the Moon Affect the Tides?

Abstract: The purpose of this investigation was to determine how the moon affects the tides. The investigator used lunar phase charts, tide charts and a telescope to monitor the lunar cycle and compare it to the high and low tides for Martha's Vineyard and Miami. The investigator concluded that the high tide was highest and the low tide was lowest when there was a full moon.

Project Number: JPS068

Grade: 6

Title: Erosion: What erodes things faster: water or wind?

Abstract: The purpose of this project is to show what erosion is. I chose this topic because I wanted to see what happens with erosion. I will get a container, a fan, 2 books and some soil. I will try to imitate erosion and see what will happen. I think that water will work because water is more strong than the wind. I think that I will learn a lot from this project.

Project Number: JPS069

Grade: 6

Title: Perfect Popcorn

Abstract: My project is about popping popcorn. I chose this project because I was interested determining how different temperatures affect popcorn. I was curious to see which one pops the best. I am taking four bags of unpopped popcorn and storing them in different temperatures. Then wait a day. Take the unpopped popcorn out of the temperature then put in microwave for three minutes. Remove popped popcorn and pour into a bowl and count how

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many kernels are left. What happened when I did the project was when I stored the unpopped popcorn in warmer temperatures there were least kernels after popping in the microwave and when I stored the unpopped popcorn in the cooler temperatures there were more kernels. My hypothesis was proven correct because the warmer temperatures had the least amount of kernels and the cooler temperatures had more kernels.

Project Number: JPS070

Grade: 6

Title: Comparison of Melting Substances

Abstract: The purpose of my experiment was to determine which melting substances melt the fastest. The procedures that I followed were to pour the same amount of a melting substance on an ice cube and time how long it takes to melt the ice, then compare them. The results showed that the calcium chloride melted the ice fastest and cat litter didn't melt the ice at all. My conclusion showed that my original hypothesis was proven to be correct.

Project Number: JPS071

Grade: 6

Title: Surface Tension: Which liquid has the most surface tension?

Abstract: The purpose of my project was to see if a penny or a paper clip would stay at the top of one of the liquids that I chose. I wanted to do this project because I learned that certain metals stay on top of certain liquids. I decided to try a penny and a paper clip on 7 different liquids. I let the liquid sit for 5 minutes and then placed the penny or paper clip on. My hypothesis is that each metal will float on three out of the seven liquids.

Project Number: JPS072

Grade: 6

Title: Does Temperature Affect How High A Golf Ball Can Bounce?

Abstract: The project that I am going to do is "Does temperature affect how high a golf-ball can bounce?" In this project, I will be taking 3 Wilson girl golf-balls to test this question. I will be putting one in a hot sock, one in the freezer and the last one I will leave at normal temperature. Next, I will get together my supplies and take it into the room. Then, I will be dropping the golf-balls below my waist and I will have someone mark where they have landed. Finally, I will record my data into my notebook. I chose this project because I'm interested in golf and I thought it would be great to do.

Project Number: JPS073

Grade: 6

Title: Testing Solar Energy

Abstract: How well will solar panel work? A solar panel is attached to a chassis with wheels. A spotlight is used to simulate the sun. A multimeter measures how many volts the solar panel is absorbing. The solar car is in front of the spotlight. When I turned the light (sun) on, the wheels turned and the reading was 2.80 volts. When I turned the light on with white paper (clouds in front of the solar panel, the reading on the multimeter was 0.05 volts. The car did not run without direct light.

Project Number: JPS074

Grade: 6

Title: Wind Affects On A Pinwheel

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Abstract: The purpose of my experiment is “How much power does a pinwheel generate when it’s exposed to wind at different angles?” I made my turbine and tested its performance by measuring the time it took to wind a thread attached to the turbine spindle while blowing air on it at different angles. For 0 degrees it took 8 seconds, for 45 degrees it took 7.2 seconds, for 90 degrees it took 6.7seconds, for135 degrees it took 9.5 seconds, & for 180 degrees it took 12.1seconds. My conclusion is that if you expose a pinwheel to wind from 90 degrees, it generates the most power.

Project Number: JPS075

Grade: 6

Title: Food: It's So Shocking!

Abstract: Purpose: To learn which food out of a selected group generates the most voltage. Procedures: Batteries were constructed using a penny, a zinc-coated nail, and a liquid or solid food item, and tested for voltage 3 times. The average and standard deviation of the three trials were calculated. Data: Both positive (1.5 V battery) and negative (water) controls behaved as expected. Orange juice was the liquid with the highest average voltage, and the solid with the highest voltage was an orange. Conclusions: Foods and drinks vary greatly in their electrical potential, which is difficult to explain based on their composition.

Project Number: JPS076

Grade: 6

Title: What a drip: What kind of salt makes the best stalactite?

Abstract: My project is called "What A Drip" and in my project I want to find which type of salt makes the best homemade stalactites. My hypothesis is that the rock salt will make the best homemade stalactites. I think it will make the best stalactite because of the minerals in the rock salt. I think that the stalactite takes the minerals and will start to form faster and even bigger crystals. The other salt I will be testing will be kosher and epsom salt.

Project Number: JPS077

Grade: 6

Title: Chromatography: What dyes were used to make m&m's and skittles?

Abstract: The purpose of my experiment is to determine what dyes were use to make skittles and m&ms. I chosen this experiment because it fits me. I am going to use chromatography to see what dyes are in the candies. Chromatography is a way to separate things into the dyes that they have in them. I think the results will be positive. I think that the Skittles will be made out of more dyes.

Project Number: JPS078

Grade: 6

Title: How About A Cold One?

Abstract: The purpose of my project was to see what method cools soda the fastest. I put 3 cans of soda in the freezer, refrigerator, an ice only bath and an ice-water bath, taking the temperature at 20 minute intervals to get 2 consecutive temperature readings. My hypothesis was that the freezer would cool them fastest. This was incorrect because the ice-water bath cooled them fastest. My conclusion is that the ice-water bath cooled the fastest due to the entire surface of the can being in contact with the cooling agent. The freezer made the pop colder, but it took longer.

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Project Number: JPS079

Grade: 6

Title: Which Salt Melts Ice Faster

Abstract: The purpose of this experiment was to see which salt would melt ice faster. Cold and icy weather poses a hazard. Rock salt, iodized salt, and non iodized salt were tested to see which would melt the ice faster on a side walk or road. Ice cubes were placed on paper plates and the difference salts were placed on top. After equal amounts of time, the ice cubes were examined to see which melted faster.

Project Number: JPS080

Grade: 6

Title: Shocking Lemons and Potatoes

Abstract: I did an experiment, the purpose of which is to study how the chemical energy in food is converted into electric energy. First, I connected a galvanized nail and penny with a copper wire, and put the nail and penny in two lemons. Then, I placed another penny (on copper wire) in the lemon with the nail, and vice versa, and connected the other ends of the wires to a clock. Repeat for the potato. I discovered if the penny and the nail don't touch, you can put them anywhere. I concluded that they are both good energy sources.

Project Number: JPS081

Grade: 6

Title: Heating and Freezing Washable Crayola Markers

Abstract: Problem:How long does a Washable Crayola Marker last after being heated and frozen? Purpose:To see how long a liquid writing utensil lasts after being heated and frozen. Hypothesis:I predict that the frozen markers will dry out and last for about 12 minutes.I also predict that the heated markers will last about 8 minutes. Procedure: 1.I let the markers sit in room temperature. 2.Then,I put the markers in the freezer over night. 3.Eventually,I set the markers in a boiling pot of water with the caps on the markers. 4.Lastly,I took the markers out of the freezer,pot,and boiling water. Conclusion:My hypothesis was incorrect.The markers in the freezer turned out to last for 7 minutes.The Washable Crayola Markers in the boiling pot of water lasted for 4 minutes.

Project Number: JPS082

Grade: 6

Title: Nerf Darts: Accuracy and Velocity

Abstract: My project explored the effect of dart length on the accuracy and velocity of Nerf darts. I modified a Nerf Rocket Launcher to fire darts measuring $2\frac{3}{4}$, 2, and $1\frac{1}{4}$ inches and tested using four, five, and six pumps of air pressure. Velocity was measured using a custom built ballistic pendulum. Accuracy was determined by measuring the spread of dart impact from a 43 foot firing distance. Velocity test results revealed that shorter darts had a higher average velocity compared to longer darts. Accuracy tests showed a more compact spread for longer darts.

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Project Number: JLS001

Grade: 6

Title: Whose Are They?

Abstract: In my project "Whose are They?" I put my fingerprint against my families: my mothers, fathers, and my two sisters. My dad inspired me to do this. My procedure follows: roll fingerprint ink onto a five and a half by nine inch piece of glass. Get a piece of white cardboard or hard piece of paper. Take volunteers finger and put it in ink and then onto the paper. Record data and drepeat with other volunteers. My results turned out to be that my sister had a likeness to my fingerprint which proved my hypothesis incorrect.

Project Number: JLS002

Grade: 6

Title: Think Green with Organic Waste

Abstract: Please visit student's exhibit for the abstract.

Project Number: JLS003

Grade: 6

Title: Compost vs Fertilizer & Soil

Abstract: My purpose was to see if plants in compost would grow better than plants in soil and plants in fertilizer. I got three pots. I put soil in each pot and put in three seeds. I put fertilizer in pot 1, put compost in pot 2, and soil in 3. I put water in each daily, and when the plants started growing I measured them. My results show that the plants in compost grew faster than the plants in soil and the plants in fertilizer. Conclusion is plants in compost grow better than plants in soil and plants in fertilizer.

Project Number: JLS004

Grade: 6

Title: Does Age Affect Memory?

Abstract: The purpose of this experiment was to analyze if memory is affected by age. Participants, ages 6-82, were given the same memory tests. I chose one memory test with twenty pictures, and another with twenty objects. I tested thirty-five people in seven age groups. Each participant had two minutes to write down all they could remember. My data proved the oldest age group scored lowest on the objects test and second lowest on the pictures test. In conclusion, I discovered my hypothesis was correct. Age does affect memory.

Project Number: JLS005

Grade: 6

Title: Getting Carried Away

Abstract: The purpose was to determine if soil erosion was affected by ground covers compared to unprotected soil. Four soil trays were prepared, unprotected soil in one tray, and three trays with various ground covers. The trays were exposed to simulated rainfall. I measured a timed amount of rainfall, and the amount of soil eroded. I found that the ground covers reduce erosion. Soil erosion is controlled by using ground covers. The results supported my hypothesis. Soil erosion damages waterways and the landscape. Reducing erosion benefits the environment. Repeat trials with more samples for additional comparative results would improve the project.

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Project Number: JLS006

Grade: 6

Title: Exergaming

Abstract: Many people enjoy playing video games, and we all know that being physically active can increase heart rate, and deplete body fat. In my experiment, I worked with two age groups. By using the Wii sports, I measured each person's heart rate before the activity, immediately after the activity, and ten minutes after that. They did this activity three times for ten minutes. You can increase heart rate, by playing a physically active video game.

Project Number: JLS007

Grade: 6

Title: Fish Gender Change

Abstract: Please visit student's exhibit for the abstract.

Project Number: JLS008

Grade: 6

Title: Do different types of common fruits have different acidity levels?

Abstract: Please visit student's exhibit for the abstract.

Project Number: JLS009

Grade: 6

Title: What Word Was That?

Abstract: In this project I wanted to find out if chewing gum would improve memory. My hypothesis was when my test subjects chewed the gum they would score much higher than when they did not. I read the test subjects a list of 20 words. After they were to write down as many words as they could remember on paper. I did this again with chewing gum, same words, different order. I did this twice more. In conclusion, my hypothesis was correct. When the test subjects were chewing the gum they scored much higher than when they were not chewing the gum.

Project Number: JLS010

Grade: 6

Title: The C's Have It

Abstract: My title is called "The C's Have It". Which orange juice will have more vitamin C in it. I hypothesized that fresh squeezed orange juice will have more vitamin C in it than the others. After I squeezed and poured the orange juice, I placed a vitamin C tablet in each then counted how many drops of iodine solution it took to change the color to brown. I performed this 3 times to get an average and to check the content of vitamin C. In the end, my hypothesis was correct and fresh squeezed juice had more vitamin C in it.

Project Number: JLS011

Grade: 6

Title: A Charlie Brown Christmas

Abstract: Christmas trees have been a favorite tradition for many years. What I hoped to learn is what you should add to a tree to keep it healthy and fresh during the Christmas season. Five containers were used with three branches in each. Each container tested a different theory. The results showed that the floral preservative worked the best. Although the

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preservative was originally created for flowers, it seems to have the same effect on trees. In the future, I recommend testing using a longer time frame.

Project Number: JLS012

Grade: 6

Title: Blooming Blossoms: Do plants grow towards the light?

Abstract: I designed an experiment that would show me if plants would grow towards the sun. I wanted to figure out if plants would grow towards the sun. We learned about plants in science class, and I wanted to further carry out experiments. I planted 3 types of seeds. I recorded which way the plants grew. I found out that plants actually do grow towards the sun if they have positive phototropism, in which case my plants did, so they grew towards the sun. I learned that plants tilt towards the sun.

Project Number: JLS013

Grade: 6

Title: Antibacterial Soap: Are Your Hands Cleaner?

Abstract: I am trying to compare antibacterial soap and regular hand soap and see which one kills more germs on your hands. I will use an ultraviolet light and both antibacterial and regular hand soap to compare my results. I will also use a lotion base simulator called Glo Germ and rub it on my hands and test the soaps using the ultraviolet light. I will see which one removed the most germs. Both soaps did about the same.

Project Number: JLS014

Grade: 6

Title: Battle Of The Calorie Burners!

Abstract: The purpose for this project is to get in shape and to be a healthier person. Also to find which machines burns more calories the elliptical, treadmill, or bike. On each day, ride the three machines for 1800 seconds. Repeat this two more times. The results were that the treadmill burned 1429 calories in three days. The elliptical burned 1414 calories in three days. The bike burned 1080 calories in three days. This means my hypothesis was denied. If I changed my project I would add the Wii Fit to it. I learned that the more testing the better.

Project Number: JLS015

Grade: 6

Title: Do Genes Affect our Fingerprints?

Abstract: The purpose of this experiment was to see if our genes affect our fingerprint patterns. I collected twenty-four thumbprints from twelve people: three groups of four family members with one being a parent. I analyzed their prints for five characteristics: loops, whorls, arches, ulnar or radial. My data showed that all the children had similar print patterns to their parent, except for one print of one child. I concluded that genes do affect fingerprint patterns, and that the one different child's print came from genes from the other parent.

Project Number: JLS016

Grade: 6

Title: What Makes Heart Rate Change?

Abstract: The study is to answer how does our heart rate (HR) change in our daily life? A stethoscope and a timer was used to count the HR of an adult man in different daily conditions, including: 1) Sleeping and awake; 2) Hungry and full; 3) Before and after drinking

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coffee; 4) In a low temperature (32°F) and a high temperature (85°F) environment; 5) Before, during, and after running on a treadmill. I found the HR increases in response to external changes, i.e. changes in temperature, and internal changes, such as hunger. However, when resting, the HR is slower.

Project Number: JLS017

Grade: 6

Title: Starch Eating Molds

Abstract: Molds grow on food, just like potatoes. This experiment is intended to learn which variable would have the most income of molds or bacteria. Six different substances were put to test on six potatoes, and every time molds were seen they would be recorded. The substances were soil, dirty finger, washed finger, hair, breadcrumbs and nothing[control].It was found out that molds barely went to the plain potato and mostly went to soil. Future plans are arranged to test out if molds can go to other substances.

Project Number: JLS018

Grade: 6

Title: How do different activities affect blood pressure?

Abstract: I did my project on blood pressure because I wanted to learn more about it. I did this by getting test subjects to see what activities affect blood pressure the most. I hypothesize that running will affect blood pressure most.

Project Number: JLS019

Grade: 6

Title: Meal Worms and Dirt

Abstract: If you have a pet lizard you may want to save money by raising mealworms at home. This project looks at which substrates produce the heaviest mealworms to satisfy those hunger pangs of your lizard. My hypothesis was that compost; their natural home, would make the heaviest mealworms. The experiment results did not support my hypothesis since bran and cornmeal produced mealworms weighing more than .75 grams. Compost and oatmeal produced mealworms weighing less than .56 grams. The experiment also showed that mealworms start losing weight as they turn into pupae.

Project Number: JLS020

Grade: 6

Title: Here Today - Gone Tomorrow

Abstract: People throw things out of car windows and say it will decompose. I want to see what items will decompose and what won't. My procedure was to place different products outside for a certain period of time. I checked the items regularly and collected as much data as possible. The results supported my hypothesis. The food products decomposed the fastest out of all the other products. The only thing that was different was the peach pit did not decompose. This project shows that most food products decompose quickly. People can use these results to limit littering our environment.

Project Number: JLS021

Grade: 6

Title: Your Music, Your Pressure

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Abstract: I did this to find out about human blood pressure and pulse. I hoped to learn the effect of music on human blood pressure and pulse. In my procedure, I used nine sixth grade boys and five kinds of music. I measured the boys' blood pressure and pulse after they heard the music.

The results show that music will make the blood pressure and pulse go down if the subject is relaxed. Almost all blood pressures went down. In my conclusion, my hypothesis was supported. My project helps by knowing which music to play to lower blood pressure and pulse.

Project Number: JLS022

Grade: 6

Title: Snails Trails

Abstract: I did this project because I love animals and nature. I wondered what surface snails like the most of the surfaces I used. My brother has snails and I would like to see which one they are attached to. I made a four-section environment. I also got ten snails at the store. Then I got algae, sand, terrestrial plants, and aquatic plants. Then I put the snails on the starting surface. I came back in 1 hour everyday for six days to see where they were. Then I recorded the results.

Project Number: JLS023

Grade: 6

Title: Are There Any Fingerprints?

Abstract: In my science fair project, I tested different porous and nonporous materials to see which one would bring out my latent fingerprint the best. To make my experiment, I hung all my materials in a jar with superglue drops in the bottom. The latent fingerprint showed up the best on the metal, one of my nonporous materials. It showed up the worst on the leather, which is one of the porous materials. In conclusion, I proved my hypothesis correct. The latent fingerprint showed up the best on the nonporous materials.

Project Number: JLS024

Grade: 6

Title: Pearly Whites

Abstract: In my project "Pearly Whites" I wanted to know what substance is the most effective on teeth. I thought that baking soda would be the most effective. To do this project, get 36 molars from dentist. Rinse teeth and dry. Fill six petri dishes with lemon juice and six with soda pop. Place one molar into each petri dish, cover, and label with substance. Soak each tooth in its solution for twenty-four hours. After twenty-four hours, brush each tooth. Return to petri dishes. Do for three weeks. Repeat two more times. Results showed that fluoridated toothpaste did the best job cleaning the teeth. Then baking soda and tartar-control toothpaste.

Project Number: JLS025

Grade: 6

Title: Does Color Affect Your Choice?

Abstract: Does one's favorite color influence our choices? The purpose of this project is to find out whether color preference affects participant's selection of colored candies. Twelve volunteers were asked to individually select 20 M&M's from a bowl using a 2-finger pinch. Results were labeled with their favorite color and tallied.

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Project Number: JLS026

Grade: 6

Title: What do plants need to survive?

Abstract: Please visit student's exhibit for the abstract.

Project Number: JLS027

Grade: 6

Title: Battle of the Genders

Abstract: Russian Dwarf hamsters are very popular pets. The purpose of this project was to evaluate if male or female dwarf hamsters were more intelligent. Two male and two female dwarf hamsters ran through a maze to determine the intelligence level. Each dwarf hamster went through the maze eleven times with a treat at the end, and they were timed. The males were more intelligent because they completed the maze in a smaller amount of time.

Project Number: JLS028

Grade: 6

Title: Sweet, Salty or Bottled

Abstract: Have you ever planted a flower or plant that just did not grow? Have you ever wondered what the best way to germinate seeds is? Well I definitely have and wanted to test it out. I decided to choose two different methods. The 1st method was seeds in a glass of water, the second method was; seeds wrapped in a moist paper towel. Which ever method had the best results would be the method used for part 2. Part 2 was testing different types of water; sugar, salt or bottled. I will determine which one is best by the length and width of the sprout and the thickness of the seed. Further testing will be needed.

Project Number: JLS029

Grade: 6

Title: Natural Zit Busters

Abstract: Please visit student's exhibit for the abstract.

Project Number: JLS030

Grade: 6

Title: The Bigger The Better

Abstract: I wanted to determine if the size of a plastic container affected how fast food would spoil. I had predicted that the larger container would spoil first. I proved it correct because of the amount of air in the larger container. Next time, I would use bakery bread instead of white sliced bread with preservatives.

Project Number: JLS031

Grade: 6

Title: Impact of Ethylene Gas on Food Decay

Abstract: The purpose of this investigation was to determine the impact of ethylene gas on food decay. The investigator tested both ethylene producers and ethylene sensitive foods and determined the effect of placing different foods together. The investigator concluded that the apple, an ethylene producer, did not speed the decay of the pepper, an ethylene sensitive food. He also concluded that the onion, an ethylene producer, helped to speed the decay of

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the potato, an ethylene sensitive food. Finally, the cucumber, an ethylene sensitive food, decayed the same amount regardless of how they were stored.

Project Number: JLS032

Grade: 6

Title: Hand Sanitizer vs Soap; Which is More Effective

Abstract: Hand washing is an important tool to reduce the spread of infection from person to person. My experiment was to see whether hand sanitizer or antibacterial soap killed the most germs. My hypothesis was that Purell hand sanitizer would grow the least amount of bacterial colonies. We took swabs of my hand and cultured it on a Petri dish after cleaning my hands with several different hand sanitizers and soaps. After photographing and comparing the Petri dishes, I concluded that Purell hand sanitizer kills the most germs.

Project Number: JLS033

Grade: 6

Title: The Next Wonder Drug?

Abstract: My experiment was to determine if dog saliva is an effective way to kill Staphylococcus Epidermis. If it is, dog saliva could help doctors treat patients with wounds. I did this experiment by growing wound bacteria in a Petri dish and collecting dog saliva. I then put the saliva together with the bacteria on the dish. The dog saliva killed the bacteria 29% of the time. Antibiotic ointment killed bacteria 100% of the time. My data does not support my hypothesis. Therefore, I conclude that dog saliva is not an effective way to kill wound bacteria.

Project Number: JLS034

Grade: 6

Title: Rooftop Gardens: Are They A Cool Idea?

Abstract: The question of Rooftop Gardens is if they keep a building cooler than a rooftop with black tar roof. I tested this by using two storage boxes with thermometers inside the boxes. A thermometer was also in between the two boxes, under the heat light that represented the sun. The boxes were labeled box A and B. Box A had sod on top of tar paper, which was on both boxes lids. After the tests, the box with the sod was the coolest.

Project Number: JLS035

Grade: 6

Title: Do Birds Eating Habits Change?

Abstract: The purpose of this investigation is to determine if Birds Eating Habits change. A birdfeeder was filled, hung on a tree, taken down, and the amount of seed eaten was recorded in a bag: sunflower seed was eaten the most during the whole period however niger seed the seed that was used to be eaten less than safflower seed was eaten more towards the end. The hypothesis if different tyoes if birdseed are put out everyday, the different seed will be eaten more because what the birds eat the most may change due to the weather was not supported by the data.

Project Number: JLS036

Grade: 6

Title: Memory Match-Up

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Abstract: The purpose of my experiment was to determine if there was a difference in “working memory” between girls and boys. To summarize the procedure, the participants (5 each) viewed a poster with 12 familiar objects for a specified time and then had to write down what remembered. There was also a hidden item to be located and used for long term memory assessment. The girls did better than the boys as they demonstrated that they remembered on average 2% more than the boys. In conclusion, my hypothesis was proven correct; girls remember more and in greater detail.

Project Number: JLS037

Grade: 6

Title: Does Music Affecting Plants Growth

Abstract: I chose this project because I wanted to figure out if music affected a plants growth. I wanted to find something that affected plants. Procedures I did in my project included measuring the plants at the beginning and the end, playing music to my plants for 1,800 seconds, and watering. I made sure they had sunlight. My results were: music did affect a plants growth. I figured out my hypothesis was correct. My results were good but I should've made changes. I think I shouldn't have used the Cactus. The Cacti didn't grow as much as the other plants.

Project Number: JLS038

Grade: 6

Title: How is Algae Affected by Soap?

Abstract: I tested the effects of six detergents, phosphate, urea, and plant food on the growth of algae. In order for algae to grow, it needs nitrogen and phosphate. When the detergents are washed into facilities, and discharged into rivers, too much algae can grow. Water was the control. In the end none of the detergents tested promoted algae growth. However, there were bubbles (indicating algae growth) in the water, phosphate, and urea test samples.

Project Number: JLS039

Grade: 6

Title: The Aftermath of Yogurt

Abstract: My project is about yogurt. I wondered how quickly non-organic and organic yogurt grows mold. Since non-organic yogurt has more preservatives in it then it should grow at a slower rate. I chose 3 different types of organic yogurt and label them A B C. Then I chose 3 different types of non-organic yogurt D E F. I poured each brand into containers at room temperate. Then I used a 10 x 10 transparency grid and measured the amount of mold every 4 days. Then I counted the squares of mold and created percentages. My hypothesis was proven correct

Project Number: JLS040

Grade: 6

Title: Do Earthworms Affect Plant Growth?

Abstract: The purpose of my experiment is to test and see if adding earthworms to soil increases a plant's growth. I had four containers. Two containers had dirt, fertilizer, and soil only. The other two containers had dirt, soil, fertilizer and earthworms. I watered each container with the same amount water and turned the containers weekly. They all recieved equal amounts of sunlight. The data showed that the two containers with the earthworms grew better than the two without earthworms.

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Project Number: JLS041

Grade: 6

Title: Mold Growth on Cheese

Abstract: The purpose of this investigation was to determine which type of cheese would grow mold the fastest. The procedures were to obtain all materials. Place the cheese in labeled buggies, place on cookie sheets, and then place into the refrigerator. The data was measured and recorded over a two week period and organized onto a data table and bar graph. The conclusion of this project is that American cheese grew mold the fastest.

Project Number: JLS042

Grade: 6

Title: Direction of Weather

Abstract: This is my purpose. It is to find if the weather in western towns is an accurate predictor of the weather in Pittsburgh the next day. I found weather conditions for three cities and Pittsburgh. Then I compared them. I found that the weather in towns west of Pittsburgh is an accurate predictor. Most of the temperatures were within three degrees. My hypothesis was denied and I learned that the weather in towns west of Pittsburgh is an accurate predictor. It helps society because people will know when to cancel outdoor events. I could improve it by adding more cities.

Project Number: JLS043

Grade: 6

Title: Organic vs Inorganic Fertilizers

Abstract: Fertilizer is a substance added to soil to improve the growth of grass. This work is intended to determine if organic or inorganic fertilizer will produce the fastest grass growth results. Grass seed was planted in six containers of top soil. Organic fertilizer was added to three containers and inorganic fertilizer was added to three containers. Water was added to the containers every day for two weeks. Grass growth was measured every day for two weeks. The results suggest that organic fertilizer produced the fastest grass growth. The experiment should be repeated to determine if the same results occur.

Project Number: JLS044

Grade: 6

Title: Plants and Temperature of the Water

Abstract: The purpose of an experiment was to see if hot water or cold water made grass grow taller. Once when I watered my flowers in summer, the water sizzled from the temperature outside. The procedures were to plant the seeds, water every other day with hot or cold water, and observe every four days for twelve days. My highest piece of grass was in container "D." I concluded that the temperature doesn't matter, the temperature of the soil or the carbon dioxide is more important.

Project Number: JLS045

Grade: 6

Title: Name That Tune: A Domesticated Cat's Response to Bird Sounds

Abstract: Cats like to hunt and play with birds. The purpose of this experiment was to see if the family cat would respond more readily to local bird songs or non-local bird songs. I selected three local bird songs and three non-local bird songs and developed a checklist of orienting responses to determine which type of songs he would prefer. I performed the tests ten times for each type of bird call. Our cat responded to local bird songs.

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Project Number: JLS046

Grade: 6

Title: Butterflies Flutter By

Abstract: My purpose for this experiment is to see which temperature is better to help butterflies develop. The two temperatures were warmer and colder. I tested my project by setting up two pavilions in two different locations. Then, I recorded the size of the butterflies every day. In my results I found that all of the butterflies in the colder temperature developed. However, only four of the warmer temperature butterflies developed. In my hypothesis I guessed that the butterflies in the warmer temperature would develop better. But, my hypothesis was denied because not all of them made it.

Project Number: JLS047

Grade: 6

Title: Are Our Houses Really Clean?

Abstract: Are our houses really clean? I did this project to see which disinfectant, that's available to the general public, would be the most effective. I used raw meats to contaminate my boards. I used sterile cotton balls and swabs to disinfect and to transfer the bacteria to the petri dishes. My hypothesis was that the 91% alcohol would be the most effective, but it was denied. The bleach was the most effective. I learned that there are different levels of chlorine in bleach. Bleach, approved by the EPA, should contain 6% chlorine and is safe to use in food areas.

Project Number: JLS049

Grade: 6

Title: Here Fishy Fishy!

Abstract: My purpose is to see if goldfish have a long-term memory to complete multiple events of three rings. First you put food into the red ring only. Next you see if the fish go through the ring. Then repeat the process for three days and record your results. Lastly on the fourth day do not put food in the rings and record results. My results are that the fish went through the ring 81% of the time. Also one fish went through the ring every time. My conclusion is that fish have long-term memory capabilities. Also my hypothesis was correct.

Project Number: JLS050

Grade: 6

Title: Can Meditating Help Pressure?

Abstract: Purpose: To see if my pressure will decrease after 30 minutes. Hypothesis: I predict my pressure will decrease. Procedure: 1. Take pressure. 2. Meditate. 3. Record results. 4. Chart. Conclusion: My pressure did decrease 85% of the time therefore my hypothesis was correct.

JUNIOR DIVISION – CONSUMER SCIENCE

Project Number: JCS001

Grade: 6

Title: Relief That Fizzes

Abstract: In my project I am trying to find out which lactose intolerance pill dissolves the fastest. I used several brands to compare. I put the pills in an acidic solution that was on a magnetic stirrer and watched as each dissolved. Lactaid dissolved the fastest.

Project Number: JCS002

Grade: 6

Title: Which Soil Drains the Best?

Abstract: The purpose of this investigation was to determine which soil type drains the best. The investigator tested sandy soil, loam soil, clay, and artificial turf. He wanted to see which one would be best to use for sports surfaces. He constructed a Plexiglas container with four compartments. He placed each of the soil types into a different compartment, added 1600mL of water and measured how much water drained into drainage pan. The investigator determined that the artificial turf drained the best.

Project Number: JCS003

Grade: 6

Title: Battle of The Batteries

Abstract: The purpose of my project was to determine if expensive batteries perform better than cheaper batteries. To check the performance, I would look at variables of time and distance. The testing was done using one AA battery to run a DC motor, and a bicycle computer to check elapsed time and distance. Each brand was tested three times. The price did impact how long the batteries lasted. The more expensive batteries ran the motor for a longer time and distance. My conclusion is that the expensive batteries do perform better. However, the cheapest battery is the most economical to use.

Project Number: JCS004

Grade: 6

Title: What's the Difference Between DVD and Blu-Ray DVD Players?

Abstract: My project is going to compare a regular DVD player to a Blu-Ray DVD player. We will compare pricing and test to see if there is really any difference in picture quality. I will compare picture quality on two different television sets. I will use a 32" television and a 42" high-def television. I will use four different movies. I will use two regular DVD's and two Blu-Ray DVD's.

Project Number: JCS005

Grade: 6

Title: Does the Same Stamp Get the Same Service?

Abstract: I am sure you want to know which post office is faster. That's just what I found out. I sent mail to three arrival points from four different locations on two different days. I discovered that none of the post offices I tested were better than the others. All arrival locations received their letters from the departure points within the same amount of time! All that showed was that no post office is faster or slower than the other ones. It really doesn't matter which post office you go to, just make sure that you like it!

JUNIOR DIVISION – CONSUMER SCIENCE

Project Number: JCS006

Grade: 6

Title: Boiling hot

Abstract: The purpose of my project is to find out the effect that boiling water has on five different fabrics. I used five types of cloth: nylon, polyester, silk, wool, and cotton. The pieces of fabric were left in boiling water for five minutes each. After the boiling period, I put them out to dry on a clothes rack. My conclusion for this experiment was that the fabric polyester had changed the most after being submerged in hot water.

Project Number: JCS007

Grade: 6

Title: Batter Up! Metal or Wood?

Abstract: My purpose is to determine if a wooden bat or a metal bat will hit a baseball farther. I hope to learn which bat will hit farther. My procedure is to have three different batters hit the ball fifteen times with each bat. After each hit, I mark the distance with a flag and measure the distance from the tee to the flag. The result of my experiment is that the metal bat hits farther except for the teenage batter. The teenage batter results may have been impacted by factors such as weather and the weight/ length of the bat.

Project Number: JCS008

Grade: 6

Title: A Fatty Problem

Abstract: I did this project because my mom buys low fat foods and I wanted to know if they tasted differently than normal fat foods. I tested twelve people. Each sampled a fat and low fat food. There was a taste difference.

Project Number: JCS010

Grade: 6

Title: The Popping Secret!

Abstract: In my project I took gasoline and diesel fuel and burned very small amounts of fuel under a can of water. I did this to see which fuel contained more energy. My hypothesis was that diesel would raise the temperature of the water higher than the gasoline would by burning the fuel. This would help me find which fuel is more energy efficient. To do this I burned the fuel under a tin can outside. Then I used the water temperature from before and after to calculate the temperature difference of water. My hypothesis was correct. The diesel gave off more energy and the energy was absorbed by the water; therefore, the water temperature went up. I concluded that, diesel fuel is more energy efficient per gallon.

Project Number: JCS011

Grade: 6

Title: Which Tape Sticks the Best?

Abstract: This research was conducted to determine whether duct tape, scotch tape or masking tape stick the best. A 17.5cm length of each type of tape was fastened to a piece of wood. The remaining 2.5cm end of the tape was looped through a rubber band. A pencil was used to pull the rubber band slowly until the tape began to tear away from the wood. The distance that the rubber band was pulled before the tape began to tear away was recorded and the investigator concluded that the duct tape was stickiest. The rubber band stretched 9cm before tearing away.

JUNIOR DIVISION – CONSUMER SCIENCE

Project Number: JCS012

Grade: 6

Title: What type of salt is the best to use when making ice cream?

Abstract: The purpose of my project is that I wanted to do something fun and hands on. My whole project was on which salt can be best used to make ice cream out of these three types of salt: table salt, sea salt, and rock salt. Then I will see which salt will create the ice cream first.. I will determine which salt works the best by using a stop watch and have three different people shake the bags while I time them..I predict that the table salt will work the best.

Project Number: JCS013

Grade: 6

Title: Propaganda Palooza

Abstract: The purpose of this study was to find out if different types of propaganda used in advertising worked differently on people based on their age, gender, and education level. Participants were shown five commercials, each using a different type of propaganda. They completed a questionnaire asking them if they had a need for the product advertised would they buy that particular brand based on the ad. I compiled the data from the completed questionnaires and concluded that people are affected by the propaganda differently based on their age, gender, and education level.

Project Number: JCS014

Grade: 6

Title: The Cost Of Keeping Clean

Abstract: I will take four different brands of laundry detergents of different prices and see how well they work at getting out different stains.Each test will use the same cloth and same stain. I will see which one gets the stains out better for your money.

Project Number: JCS015

Grade: 6

Title: Which Popcorn Pops the Most?

Abstract: My project was about seeing which popcorn would pop the most. The three different types of popcorn I used were act II, pop secret, Shop and Save. Act II was the winner because it had the most butter which allowed it to pop better because it had the most moisture. Each brand wasopped in the microwave and popped and unpopped kernels were seperated and counted. Act II popped the most kernels followed by pop secret and Shop and Save is last. We learned that for kernels to pop we needed a combination of starch, water, and heat.

Project Number: JCS016

Grade: 6

Title: How Pure Is Pure?

Abstract: I conducted my experiment to find out what contaminants are in my home tap water and Trader Joe's Natural Mountain Spring Water. I bought two Watersafe test kits to test the water. I followed the instructions in the booklet from the kit. The results were that the hardness in both types of water was above the standard of 50 ppm at 120 ppm. The chlorine level for the bottled water was 0 ppm, and for tap water, it was 2 ppm. I concluded that both types of water are safe to drink because they both tested below the EPA standards.

JUNIOR DIVISION – CONSUMER SCIENCE

Project Number: JCS017

Grade: 6

Title: The Science Of Speed

Abstract: Please visit student's exhibit for the abstract.

Project Number: JCS018

Grade: 6

Title: Bucks for Batteries: Is it Worth It?

Abstract: Did you ever wonder if higher costing batteries are worth the extra money? Is there a difference between zinc chloride, alkaline, and lithium batteries? How does the cost and battery type compare with the batteries endurance and apparent brightness? These are the questions that this experiment will explore. Using identical nursery lights, five batteries, ranging in price and varying in type, will be tested and compared. The conclusion will be determined at the end of the experimentation.

Project Number: JCS019

Grade: 6

Title: What Removes Stains the Best?

Abstract: Both Tide and CVS stain removers are said to be the best. Which one is truly the best? For my experiment, I decided to find out. I had three stains for the removers to get out, to determine what works best. CVS worked best on all of the stain removers.

Project Number: JCS020

Grade: 6

Title: Which Gasoline Has The Best Fuel Economy?

Abstract: The purpose of this investigation was to determine which gasoline has the best fuel economy. The investigator tested 87, 89 and 93 octane gasoline. Fifty three liters of each type of gasoline was used and the miles driven were recorded for each type of gasoline. The investigator concluded that the 93 octane gasoline had the best mileage to the gallon.

Project Number: JCS021

Grade: 6

Title: Popcorn Mania

Abstract: My project was to determine which microwave popcorn left the least amount of unpopped kernels. I compared five brands, 8 bags of each. Act II had the least percent of unpopped kernels.

Project Number: JCS022

Grade: 6

Title: Stain Remover Vs. Red Wine

Abstract: In this science fair project four stain removers were tested on red wine. The stain removers used were Resolve, Oxi Clean, Bleach, and Spot Shot. The red wine was spilled onto carpet samples. After using all of the stain removers on similar pieces of stained carpet, the carpet samples sat for 2 days. After those 2 days, the stains were compared. Bleach had worked best, and Resolve had worked least.

JUNIOR DIVISION – CONSUMER SCIENCE

Project Number: JCS023

Grade: 6

Title: Which Milk Spoils Quickest?

Abstract: My purpose of this experiment is to see which type of milk, 1%, 2%, skim, whole, or heavy cream, spoils before others. It is for my, and others, use. I took various milks and left them at two different temperatures (about 2°C and 22°C). I did it to see if they would spoil or not. My results show that my hypothesis was wrong. I believe that the fat had affected the smell and the taste of the milks. I have concluded that it's beneficial for people to drink 2% or whole milk. It does depend on their habits, though.

Project Number: JCS024

Grade: 6

Title: How Different Water Types Affect Soap

Abstract: The Experiment I did was to show how different types of water affect soap. I dropped eight different types of water onto a drop dish soap to see which would have the biggest effect and would make the most bubbles. I thought that soft water would make the most bubbles. I thought well water would have the least effect and the least bubbles. My results proved my hypothesis incorrect.

Project Number: JCS025

Grade: 6

Title: Smoke Alarm

Abstract: Cigarette smoking is literally a "dirty habit" and in my experiment, I found out just how much tar gets into a smokers lungs. I used a clear tube and stuck in a piece of cotton in it. (Cotton resembled a filter) Then I put the cigarette on the end of the tube. Next I had my dad smoke the cigarettes and when he was done I studied each tube and cotton filter. I did this project to get all the smokers to quit before they end up with lung cancer.

Project Number: JCS026

Grade: 6

Title: The Coolest Cooler

Abstract: The coolest cooler is the name of my project. I chose this because I thought it looked interesting. What I did was get four cans of root beer and then put can coolers over them and test the temperature of them in a certain amount of time. My results were that the can that didn't have a can cooler did the worst. The can with the neoprene did second to last. The can with the rubber can cooler did third to last and the can with the styrofoam can cooler tied with the rubber can cooler.