



# 67th PITTSBURGH REGIONAL SCIENCE & ENGINEERING FAIR

## JUNIOR DIVISION ABSTRACTS

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Pittsburgh Regional Science & Engineering Fair is a major event of the SciTech Spectacular

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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.**

## JUNIOR DIVISION – PHYSICAL SCIENCE

Project Number: JPS001      Grade: 6

Title: Got Lead?

Abstract: Not available. Please visit student's exhibit for abstract.

Project Number: JPS002      Grade: 6

Title: Why is the sky blue?

Abstract: Have you ever wondered why the sky is blue and the sunset is red? In a clear glass, milk mixed with water is used to represent the gas molecules and dirt particles in the atmosphere. A flashlight represents the sun. By shining the light from different angles and viewing the light from different directions, the simulated sky looks blue in a daytime position and red in a sunset position. In conclusion, the color of the sky is not simply blue. It changes according to viewing direction, the position of the sun, and the condition of the atmosphere.

Project Number: JPS003      Grade: 6

Title: Electrical Conductors

Abstract: Purpose: To see how electricity will go through different metals to light a light bulb.

Project Number: JPS004      Grade: 6

Title: Flexibility

Abstract: Girls do many activities that involve flexibility. Therefore, girls are more flexible than boys. I tested them in five different exercises to get this result. I did this experiment because I am a dancer, there were always boys at our classes and I always wondered if they were more flexible than girls, in general. To conclude this experiment, girls do more activities that involve flexibility versus boy's sports including running and throwing. Therefore, boys have less ability to bend.

Project Number: JPS005      Grade: 6

Title: Ice Ice Baby!

Abstract: The purpose of this experiment is to determine which type of salt will dissolve ice the quickest. We have always known salt as being used in the kitchen, for medical reasons, and on the road when inclement weather occurs. The salts I will be testing are Kosher salt, Epsom salt, Rock salt, Sea Salt, and Morton's table salt. I would like to prove the salt that is most useful.

Project Number: JPS006      Grade: 6

Title: Which brand of motor oil lubricates the best?

Abstract: I am conducting an experiment to determine which type of motor oil lubricates the best. To do that I will build a friction making device, apply the lubricant, and compare to a control to determine which type lubricates the best. To make the friction, I will put a sheave on a DC motor with a metal rod leaning against it. Next, I check an ammeter hooked up to the motor because the more resistance an electric motor encounters, the more current it calls for. I'm still running trials to collect data and results are pending.

## JUNIOR DIVISION – PHYSICAL SCIENCE

Project Number: JPS007      Grade: 6

Title: Warm Golf Balls Bounce Higher

Abstract: Warm Golf Balls Bounce Higher

There are many factors which affect golf ball performance: size, weight, shape, and surface, for example. We chose to keep these properties constant and investigate the effect of changing the total energy in the golf ball. A golf ball is made up of a spherical core material covered with a layer of tough plastic. Both the core and covering are composed of tightly packed atoms. The atoms maintain their inter-atom relationship through bonds. We can increase the temperature in the ball by adding heat which will raise the total energy in the golf ball. In this way, the heat can be used to raise the ball's total energy. Decreasing total energy in the ball can be accomplished by lowering golf ball temperature. Therefore, the purpose of the experiment was to change the total energy in the ball and evaluate ball performance. We measured ball bounce height after heating and cooling the ball. Our hypothesis is that bounce height will change with ball temperature. The procedure involved the height measurement of a single bounce when golf balls were dropped from a constant height. The temperature of the golf ball was varied and bounce height measured. Each ball was tested three times at the specified temperature. The data indicated raising the ball temperature resulted in increased bounce for all balls tested. Our conclusion is that increasing the total energy in the ball resulted in increased bounce. More energy in the ball yields a higher bounce.

Project Number: JPS008      Grade: 6

Title: Mousetrap Cars!

Abstract: The purpose of this experiment is to determine which type of wheel will allow a mousetrap car to travel farthest.

Project Number: JPS009      Grade: 6

Title: Will it sink or float?

Abstract: Why is it that a boat can float in the water without sinking or ice cubes in a cup of water stay at the top and not at the bottom; the answer is because of buoyancy. To prove that statement, six objects were put into water to see which objects would float, which objects would sink, and which objects were buoyed-up. The results were that none of the objects buoyed-up, 2 sunk and 4 floated on the surface.

Project Number: JPS010      Grade: 6

Title: What Material Is The Best Insulator?

Abstract: Heat is important in today's society because of gas prices going up. My goal was to figure out what material could keep a substance the warmest. 6 glasses were set out and into them I poured 250 ml of boiling water. Each cup was wrapped with one layer of my materials; they started at 100 degrees Celsius which I measured with a digital temperature meter. I did the same for 30 minutes every 2 minutes. At the end polyester was the best; the other materials I used in order from best to worst are wool, cotton, silk, spandex, nylon. My hypothesis was wrong.

## JUNIOR DIVISION – PHYSICAL SCIENCE

Project Number: JPS011      Grade: 6

Title: Electrical Savings with Skylights?

Abstract: My work intended to learn if using skylights in a home would allow more natural light to enter a home. If so would it reduce the amount of electricity used and electrical costs. A heliodon and model home were used for my experimentation. A light bulb that simulated the sun took its path over the model home and I recorded my observations from when there were and weren't skylights. I found that skylights do allow more light in the house and reduces the amount of electricity, but the utility costs for only lowered slightly and more considerations should be noticed.

Project Number: JPS012      Grade: 6

Title: Mummy Mania

Abstract: I wanted to understand how the Egyptians preserved their mummies. My research led me to believe that a combination of salts and oils were used. I placed a half of an apple in a mixture of salts for ten days while the other half was left untreated. The half in the mixture was leathery while the other half had become rotten. I then introduced oil to one half of the leathery apple for another ten days. The quarter of the apple that had been exposed to both salts and oils was the best preserved.

Project Number: JPS013      Grade: 6

Title: Sweet Tooth

Abstract: The beverage people drink could be just as damaging to their teeth as the food they eat. This project intended to determine which beverage caused the most tooth decay. Four different teeth were each placed in 125 milliliters of four different beverages and observed daily for one week. The results showed that the tooth soaking in Hawaiian Punch deteriorated the quickest, followed by the in Pepsi. The tooth in milk barely showed change, and the one in water showed no change. It was determined that of all the beverages used, Hawaiian Punch had the most damaging effect.

Project Number: JPS014      Grade: 6

Title: How temperature Affects the Freshness/Ripeness of Fruit

Abstract: Fruits come in many different varieties and are very healthy to eat. My work centered around the freshness of fruit and the role temperature plays in the ripening process. Three types of fruit (Strawberry, Apple and Pear) were placed at four different temperatures. The temperatures ranged from a low of 5.9 degrees to a high of 100.2 degrees. These temperatures were recorded daily along with the look, smell and feel of the fruit. I found that higher temperatures accelerate the freshness of fruit. Future work is planned to determine which fruits ripen the quickest.

Project Number: JPS015      Grade: 6

Title: A Natural Hazard

Abstract: I wanted to find out how much a building on the beach affected the sands movement. I gathered my materials and did the project at home. I used bricks, sand, a fan, paper, and wood. The smaller building had more sand behind it on the paper than the taller building. There were a large number of variables. I tried to make the sand the same each time I tested. Since the sand was not always the same, I would not use it as a forecast. I am not planning to make a follow up.

## JUNIOR DIVISION – PHYSICAL SCIENCE

Project Number: JPS016      Grade: 6

Title: Conductivity of Aqueous Solutions

Abstract: The objective of this experiment is to determine the conductivity by measuring the current generated in a cell containing household aqueous solution. The control is distilled water. Results show the order of conductivity from high to low is salt water, soft drinks, 4% vinegar, juices, sugar water, and distilled water. Salt water has high conductivity because it dissociates completely into sodium and chloride ions. The movement of these ions between the electrodes generates current. Higher acidity appears to show higher conductivity among the juices and drinks. Sugar and distilled water showed near zero conductivity because they cannot separate to ion.

Project Number: JPS017      Grade: 6

Title: The Effects of Cat Litter, Cinders, & Road Salt on Icy Sidewalks

Abstract: The purpose of my experiment was to see what material had the best traction (Rock salt, cat litter, and woodchips). First, I put water in a tray, and froze it. Second, I put the ice on a 45° angle and put the materials on separate trays. Then, I used a stopwatch and timed it. According to the results, the Cat Litter had the most traction. In conclusion my results disapproved my hypothesis that wood chips had the most traction.

Project Number: JPS018      Grade: 6

Title: Got Relief?

Abstract: People often get headaches and most people do not like waiting for extended periods to get relief. I performed this experiment to discover what type of pill dissolves the fastest. I placed the pill in a measuring cup filled with white vinegar and used an electronic stirrer to simulate the movement of the stomach. I observed ten samples for four different pill types. The Gel Tabs dissolved the slowest, followed by the Caplets, Liquid Gels, and Rapid Release Gels, which dissolved the fastest. The experiment determined that the Rapid Release Gels dissolved the fastest.

Project Number: JPS019      Grade: 6

Title: Synthesis

Abstract: Not available. Please visit student's exhibit for abstract.

Project Number: JPS020      Grade: 6

Title: Airport People Mover

Abstract: Everyday, thousands of people rush through the nation's airports ever pressed for time. Moving walkways have been installed in Pittsburgh International Airport to assist travelers in moving through the airport more efficiently. This study tested whether using the moving walkway actually saves the traveler steps and time when traversing the airport. Subjects were asked to move through the airport either on the moving walkway or adjacent hallway. Their steps were counted using a pedometer and travel time was measured using a stopwatch. This study revealed that using the moving walkway saved steps and time compared to using the adjacent hallway.

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Project Number: JPS021      Grade: 6

Title: Various Wave Configurations

Abstract: This science project is to see what will cause a bigger wave: wind, underwater current, or underwater shock. First using a shallow wooden box measuring 1 1/2' X 3' filled with approximately ten gallons of water, begin procedures. Set an air conditioning fan on high, record the highest wave it produces. Using the drilled hole in side of box, place in straw and blow. Record size of wave. Place ready mouse trap on bottom of box, when it snaps, record size of wave. DO these procedure several times, recording your data, then average sizes. This will tell you what makes a bigger wave.

Project Number: JPS022      Grade: 6

Title: Whatever Floats Your Boat

Abstract: My project is about buoyancy of ships and how they travel in affects their ability to carry loads. Through my reading I formed my hypothesis - Different fluids affect the load capacity and the height that a ship sits in the water. From my testing I concluded that my hypothesis was correct. To fully load a ship you must know the type of water it will travel in safely.

Project Number: JPS023      Grade: 6

Title: Which Sandbag Filling Is Best?

Abstract: The Johnstown Flood holds interest to me because it was one of the worst disasters and more recently Hurricane Katrina. To control flooding people use sandbags. For my project I wanted to find out what type of sandbag filling would work best. The filings I used were course gray sand, fine blue sand, small stone gravel, and modeling clay. I found that sandbags filled with small gravel and sand fragments were the most effective in controlling water.

Project Number: JPS024      Grade: 6

Title: What's in your water?

Abstract: Safe tap water is very important to our health. I wanted to know if there was a difference in tap water from different states. After gathering tap water samples from Pennsylvania, Connecticut, and Georgia, I used vials containing bacteria growth powder to test for bacteria. Eight other possible contaminants were tested by the use of test strips. The results of my tests proved that Georgia has the best tap water. In the future, I would like to test the water from different boroughs to see how different sewage plants treat their water.

Project Number: JPS025      Grade: 6

Title: That's the Way the Ball Bounces!

Abstract: The purpose for completing this project is to determine if temperature affects the way a basketball bounces. Does particle movement affect the bouncing ability? That is what I am trying to determine from this project.

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Project Number: JPS026      Grade: 6

Title: Which Candle Wax Burns Longest

Abstract: Fire is one of the discoveries that changed mankind. In this experiment, I tested to see what wax burns the longest. I did this experiment to learn which wax burns the longest. Four different candle waxes in holders were placed on a table and burned for 6 hours. I placed a cookie sheet above the candles to measure soot. I thought that soy would be the least burning candle wax but the beeswax burned down the least.

Project Number: JPS027      Grade: 6

Title: Is it Warm?

Abstract: The purpose for completing this project is to determine the insulation properties of various substances. I want to determine which insulator will keep a steady temperature.

Project Number: JPS028      Grade: 6

Title: Which Bridge is the Strongest?

Abstract: The purpose of my experiment was to find out which bridge design is the strongest, and which would be the most economical in terms of how many matches each consumed. I built bridges of different designs (beam, truss, arch) out of matches and tested how much weight each could withstand. The beam bridge held 234 pennies and consumed 83 matches, the truss held more than 468 pennies but used 99 matches, and the arch held 246 pennies while consuming 89. Therefore, the beam bridge was the weakest but cheapest, and the truss was the strongest but least economical.

Project Number: JPS029      Grade: 6

Title: Which Golf Ball Bounces Highest?

Abstract: There are lots of people who play golf. That is why I chose this project. Purpose of the project: My purpose of the project was to know which golf balls bounce higher than other golf balls so I can choose golf balls on the golf course.

Project Number: JPS030      Grade: 6

Title: Electric Food

Abstract: This experiment tested which of the foods being tested conduct electricity. Some foods can already be made into batteries. This experiment was conducted to see if anymore can. A circuit was made with a 9-volt battery and a 4-watt light bulb. A piece of food was put between the wires. Then it was observed whether the light bulb lit up or not. None of the foods tested were conductors. In the future, this experiment will most likely be conducted again with other foods or different types of a food.

Project Number: JPS031      Grade: 6

Title: Wooden Car Race - Does Weight Matter?

Abstract: I wanted to see if a heavier car would go down a slope faster than a lighter one. First, I went shopping and got all my materials. Then I set up my experiment. After I have set my experiment up, I did my experiment a couple of times and recorded my data. My data showed

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that a slightly lighter car went faster than a heavier one. In conclusion, my data table shows that a lighter car will go faster than a heavier car.

Project Number: JPS032      Grade: 6

Title: How is Fog Created?

Abstract: Fog occurs when air near the ground cools rapidly and, touches down. I am going to see if that is really true. Can you make fog at home? I think I know a way to make it in a bottle. Fog is made up of condensed water droplets. This causes the result of the air being cooled to the point. This point is called the dew point. Webster Dictionary defines fog as condensed water vapor in a cloud like mass limiting visibility. This work is intended to see if fog has a possible way to be made at home.

Project Number: JPS033      Grade: 6

Title: How Does Vision Affect Our Taste?

Abstract: Many people turn their noses up at things they think looks unappetizing. I wanted to prove that vision does affect the way people determine their preference in taste.

Three different colors were used in water; green, blue and red. The majority of the taste testers picked red as the most flavorful. Also, a blindfold taste test was conducted. When the blindfolded testers ate something, the majority was not able to identify the taste. Research has shown that people rely on their vision first before they use their sense of taste.

Project Number: JPS034      Grade: 6

Title: What Tires Have The Best Traction?

Abstract: What I did was I took four different kinds of dirtbike tires to test on dirt, sand and wood. I did this experiment because I really do race motocross and am really into it, therefore I would like to know what tire has the best traction on different terrains. What I did was I took a box of dirt, put it under the bike, and videotaped how much dirt got thrown out of the box. I did the same thing in sand, and then for the wood I just watched the skidmarks form. My results were that in the dirt, the D739 ran the best. In the sand, it was a tie between the D773 and the D739. On wood, the GS45Z worked the best. My conclusion was that every single one of my variables mattered.

Project Number: JPS035      Grade: 6

Title: Germ Busters

Abstract: Hand sanitizers are very effective, but I wanted to know which hand sanitizer was the most effective out of five different hand sanitizers. I grew bacteria from Agar pans, and I tested five different hand sanitizers on them to see which hand sanitizer destroyed the most bacteria. The data was recorded in percentage. Purell demolished the most bacteria out of the other four hand sanitizers. The experiment was tested only two times, but the results of both trials were quite similar. Though if this experiment were to be tested more than two times the results would be more reliable.

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Project Number: JPS036      Grade: 6

Title: Watt Bulbs the Brightest?

Abstract: With the increasing cost of electricity I wanted to find out which light bulb would give off the most energy. To create this experiment I researched a way to measure the light energy given off by the bulbs. I used a solar cell that was connected to a volt meter. I held the solar cell 60.9cm from my sample bulb. I recorded the voltage from the solar cell. I did this for five different samples. The final results were that a mercury gas filled light bulb gave off the most volts/watts.

Project Number: JPS037      Grade: 6

Title: Water and Time

Abstract: Water and time - can we measure time with water? I wanted to see if it was possible to get an accurate measurement of time using water. I researched the Egyptian water clock A Clepsydra and found it to be the first water clock, so I followed the steps on the history as close as I could to conduct this experiment. It was determined that this is possible but not accurate in measuring time with water. I do not think that at this time I will plan to extend this experiment.

Project Number: JPS038      Grade: 6

Title: Freezing Bubbly Water

Abstract: Carbonated water, also referred to as seltzer or club soda is a popular drink. Its carbonation is really carbon dioxide gas dissolved in water. This carbon dioxide gas bubbles in your mouth and creates a sparkly, clean taste. My work is intended to find out if carbonated water loses its carbonation when frozen or defrosted. Three different samples were frozen under the same conditions, same amount of water, same type of cup and same freezing temperature. I recorded the results of each sample. The samples do not have a lot of carbonation, but they taste a little bit sparkly.

Project Number: JPS039      Grade: 6

Title: Finding Forces

Abstract: For my science fair project I decided to find how much magnetic force was in each of my samples. What I did to find this was I took three different types of metals and clamped them to a table and attached my magnet to the force meter and set my magnet on each type of metal and pulled the force meter up. By looking at the numbers on the force meter I would see how much force was in each sample of metal. This did not support my hypothesis because I thought the steel would have the magnetic force.

Project Number: JPS040      Grade: 6

Title: Sparking Candy!

Abstract: The purpose for completing this experiment is that I would like to determine if crushing different mints will create a source or spark of light, and how it effects the molecules found in that candy.

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Project Number: JPS041      Grade: 6

Title: Have You Got Your Bearings?

Abstract: Skateboarding is a great sport. Each skateboard has a deck, trucks, wheels, and bearings. On each of the bearings a number is assigned. This number is called the ABEC which stands for: annual bearing engineers committee ratings. The ABEC rating is determined by the tolerance level on the bearing. This experiment was to see if the number on the bearing would effect how fast the skateboard would go. Ten skateboards were tested and timed for ABEC 3, ABEC 5, and ABEC 7 bearings. The ABEC 7 rating had the fastest average and the fastest overall time.

Project Number: JPS042      Grade: 6

Title: Speed Demons

Abstract: The purpose of this experiment is to determine the amounts of potential energy and kinetic energy in a model car. First, I built three cars and a track. Then I tested the cars down the track at three different heights. The heights were .1m, .2m, and .3m. Potential energy represents the amount of energy stored in an object due to its height above the ground. Kinetic energy is the energy associated with the movement of an object. When I raised the height of the track, the potential energy increased and so did the kinetic energy. After I added the weight, the potential energy doubled, but it didn't cause much of a difference in the kinetic energy.

Project Number: JPS043      Grade: 6

Title: Remediation of AMD

Abstract: This was an investigation of three methods to treat AMD. The methods included bubbling air into the water, adding limestone to the water, and simply letting the water sit. The pH of the three water samples was measured using a computer and pH sensor. Of the three samples the one with limestone showed the greatest increase in pH (3.5 units in 80 hrs). It was expected that bubbling air into the water would have the most dramatic effect but that was not the case. It makes sense that the limestone increased the pH as the lime neutralized the acid.

Project Number: JPS044      Grade: 6

Title: Electromagnetic Forces

Abstract: My project is on magnetism. The purpose of my project is to find out what will effect the strength of electromagnets. The process I used was to use two 6 volt batteries to see if it would increase the magnet strength. The data that I collected was that voltage didn't have an effect on the magnet. Voltage doesn't seem to effect the strength of the magnet but the amount of wire wrapped around the nail would effect the magnet.

Project Number: JPS045      Grade: 6

Title: How Steep Can A Car Go?

Abstract: Cars and trucks are a typical part of everyday life. But when they go down a hill, some times they might crash. How steep can a toy car and truck go downhill without crashing? A wooden plank was made to act like a hill. The plank can be adjusted to different angles. The car and truck were sent down the hill. The angle was increased 5 degrees after each test. It was determined that the car and truck didn't always crash at the same angles. The angle when a car crashes depends on its weight and size.

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Project Number: JPS046      Grade: 6

Title: Thermal Conductivity of Metals

Abstract: Different types of metals conduct heat at different rates. This project is to find out which metal among copper, aluminum, brass and steel would conduct heat fastest and also whether the thickness of the metal will have an effect on the rate of conductivity. My hypothesis was that the copper and the thicker metal would conduct heat the best. I took equal length of wires, heated them on one end and measured the temperature change, in one minute interval, for 5 minutes. I found out that the copper and the thick wire conducted heat the best.

Project Number: JPS047      Grade: 6

Title: That's the Way the Bridges Fall!

Abstract: The purpose of this experiment is to find out which type of bridge can hold the most weight. The bridges being tested are a Truss bridge, Beam bridge, Girder Bridge, Suspension bridge, and Rigid Frame bridge. Using Popsicle sticks and blueprints created or obtained, I will create each bridge and place weights on the bridges until they collapse.

Project Number: JPS048      Grade: 6

Title: Electrolysis of Water

Abstract: This work was meant to answer the question "How can you split something as small as molecules?" Using electricity, water was separated into Hydrogen and Oxygen ions, which attracted each other to create gases (the two elements in water). The gases rose into a test tube, and then were ignited with a match. Although there is twice as much Hydrogen as Oxygen, It only took 30 minutes more to fill the test tube. If an alternative experiment was to be run, the tubes would be switched halfway. When the gases were ignited then, they would combine, and create water.

Project Number: JPS049      Grade: 6

Title: Which Water Has the Least Chlorine?

Abstract: The purpose of this investigation is to determine what type of water has the least chlorine. I tested these types of water; filtered, tap, bottled, mountain, and distilled water. I took test strips and put them in water, such as, filtered, tap, bottled, mountain, distilled water were tested, then filtered water will have the least amount of water will have the least amount of chlorine because filtered water has gone through a filter. It did not support the data. The results were that distilled water had no chlorine.

Project Number: JPS050      Grade: 6

Title: Mount Up with Wings as Eagles

Abstract: Not available. Please visit student's exhibit for abstract.

Project Number: JPS051      Grade: 6

Title: Is it getting hot in here?

Abstract: Purpose of the experiment: The purpose of this experiment was to see if some roofs keep the average temperature more moderate than those of other materials. Procedures Used: After constructing a test area consisting of six Styrofoam houses with six different commonly used

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roofing materials and placing the test area outside, the internal temperature of each house was measured for 15 days at 7 am and 5 pm as well as the outside temperature. Data: Out of all the test materials the house with the aluminum roof had the smallest average variable temperature. Conclusion: If insulation were the only factor in choosing a roofing material, then according to this study an aluminum alloy roof would be best.

Project Number: JPS052      Grade: 6

Title: Separate and Burn

Abstract: Have you ever wondered, besides giving the world color, pigments do? Seven different pigments (red, green, purple, orange, brown, yellow and blue) were separated on chromatography paper, using water or vinegar. They were put into a fire to see if the fire would affect the sound, smell or temperature given off by the fire. It was discovered that all of the variables had the same results. Neither the sound nor a temperature was affected by the burning, but the smell was affected. Therefore, when chromatography paper is burned a gas is released that smells bad.

Project Number: JPS053      Grade: 6

Title: What Floats Your Boat?

Abstract: I decided to do this experiment because when I was on my uncle's boat this summer I wondered how so much weight could keep a boat afloat. I used three different types of clay to test my hypothesis and decided that foam clay would displace less water and float higher in the water. After I tested the three different types of clay and recorded the data I learned that my hypothesis was correct.

Project Number: JPS054      Grade: 6

Title: Fuse It or Lose It

Abstract: A fuse is a working device that protects a circuit from overheating or getting to much of a flow from a current. Most fuses are made with a metal strip in the center and it will melt at an extreme temperature. A fuse is made so that the strip of metal can be placed in the electrical circuit easily. I wanted to test which material would work the best in a fuse using copper and tinsel. I also wanted to see if a homemade fuse would work better than a store bought one. By constructing a simple fuse circuit board, I was able to test my homemade circuit against a store bought one.

Project Number: JPS055      Grade: 6

Title: Does the Size of a Wheel Affect Speed?

Abstract: Wheels come in all sizes. This work tested the speed of small wheels compared to the speed of large wheels. I timed the wheels going down a track. I also added weights as my variable. The results showed that larger wheels are faster than smaller wheels. In conclusion the size of the wheel does affect speed.

Project Number: JPS056      Grade: 6

Title: Heat Transfer

Abstract: Heat is transferred through conduction, convection, and radiation. This work intended to learn the color of water that will transfer the most heat. Three experiments were conducted heating two ounces of room temperature, food colored water for one minute. The colors were red, yellow and dark blue. Heat sources were stove top with metal container (Conduction), electric

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heater with blower (Convection) and Microwave Oven (Radiation). The yellow water gained the most heat and the blue water gained the least heat in conduction and radiation experiments. Convection heat gain was negligible for all colors. Lighter colored water gains the most heat.

Project Number: JPS057      Grade: 6

Title: Hovercrafts

Abstract: The purpose for completing this experiment is to determine what combination of balloons and types of wood used (balsa, cardboard, and bass wood) will allow the hovercraft created to fly higher, and how long it takes for it to reach its height.

Project Number: JPS058      Grade: 6

Title: Crystal Growth in Different Light

Abstract: The purpose of my experiment is to see if different environments effect the growth of different types of crystals. Four types of crystals were grown in both the light and dark. The types of crystals were alum, salt, sugar, and borax. One set of crystals was set in the window to receive natural light. The other was set in a dark area of the basement. Of the four crystal types, the salt grew larger in the dark. This tells me that the crystals grown in the light probably had a longer period for crystallization.

Project Number: JPS059      Grade: 6

Title: Building a Working Model Skid Steer

Abstract: Not available. Please visit student's exhibit for abstract.

Project Number: JPS060      Grade: 6

Title: Wind Energy!

Abstract: The purpose for completing this project is to determine if you can create energy using a homemade turbine engine.

Project Number: JPS061      Grade: 6

Title: Red Eye Alert

Abstract: In flash photography the further from the camera the person is the more red eye on the photo. When observing many pictures there were different amounts of red eye. This work focused on ways of decreasing red eye and exploring what causes it. Three designated photography spots were measured at 60cm, 180cm, and 360cm. Twenty students were then placed on the photography spots. At each distance they were photographed. The furthest distance from the camera which was 360cm had the most students with red eye (60 per cent). Future work could include increasing the number of people, and comparing different types of cameras.

Project Number: JPS062      Grade: 6

Title: Center of Gravity and Balance

Abstract: I like to windsurf. I wondered if lowering my center of gravity could help my balance. My hypothesis is that a lower center of gravity improves balance. I made a windsurfer using a board with a stick through the center. I placed clay at different locations along the stick. I tipped the model and measured the angle where it became unstable. I did land and water trials. As the

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center of gravity was lowered, the angle where the board became unstable increased for land and water. I conclude that I should bend my knees when I windsurf.

Project Number: JPS063      Grade: 6

Title: Splitting Water into Two Gases

Abstract: The purpose of this experiment is to see how the process of electrolysis is carried out.

Project Number: JPS064      Grade: 6

Title: Sound Sucker

Abstract: The reason I picked the Sound Sucker is because it will seem like a good experiment and I want to learn more about sound. The Sound Sucker sucks up background sound. You have to close your eyes put the Sound Sucker on one ear wave around your head to the other. My experiment was to find out what places helps the sound sucker work better out of outside or my game room and the game room won. I found out sound comes in sound waves which is measured by decibels.

Project Number: JPS065      Grade: 6

Title: Does Saltwater Weaken Concrete?

Abstract: Not available. Please visit student's exhibit for abstract.

Project Number: JPS066      Grade: 6

Title: Raising Soda to A "Hire" Level

Abstract: People often drink carbonated soda but don't know what happens inside their bodies. This project was chosen to measure the acidic pH of soda. The pH of eight different sodas was measured with a digital pH meter. The pH was checked after 1,11,15, and 20 hours. The pH didn't change even though carbon dioxide was released from liquid. Coca-Cola had the lowest pH. Pepsi had the second lowest pH and Root Beer had the highest pH. It was concluded that carbonation did not contribute to acidity and that Root Beer was the least harmful to the body.

Project Number: JPS067      Grade: 6

Title: Bats: Effect on Ball Distance

Abstract: To see which bat, aluminum or wooden, propelled a baseball the farthest. Controlling for gravity and drag on the ball, I went to a flat area, put the ball on a tee, placed a bat in a holder controlled by a latch, spring and hinge. The latched bat was released, hitting the ball; the distance was measured from the tee to the spot the ball landed. 80% of the time the aluminum bat propelled the ball farther than the wooden bat. I concluded that on average, the aluminum bat propelled the ball the furthest distance.

Project Number: JPS068      Grade: 6

Title: Varieties of Bouncing Balls

Abstract: Did you ever wonder why certain balls bounce higher or lower than others? I wanted to find out which ball type bounces the highest. My experiment is called Varieties of Bouncing Balls. For my experiment I used a tennis ball, softball, and a super ball. I dropped each ball three times, one meter above a concrete surface. My results were that the super ball bounced 75 centimeters,

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the tennis ball bounced 54 centimeters, and the softball bounced 27 centimeters. I proved my hypothesis that the super ball bounced the highest because of its materials.

Project Number: JPS069      Grade: 6

Title: Running Through Sand

Abstract: Sand is everywhere, on the beaches, lakes, and even on your house. This experiment was to determine which sand, from South Carolina, Florida, or California was best for laying bricks. Water was poured over three sands and timed. Sand that let water through the slowest had the smallest particles. It's known that smaller sand particles are best for laying bricks. The experiment determined that sand from Charleston, South Carolina works best. The next best sand is from San Pedro, California, the worst sand for laying bricks is from Destin, Florida. When laying bricks, it's best to use South Carolina sand.

Project Number: JPS070      Grade: 6

Title: Road Resistance

Abstract: Not available. Please visit student's exhibit for abstract.

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Project Number: JLS001      Grade: 6

Title: How Different Genres of Music Effect Basil

Abstract: The purpose of this experiment is to determine if music effects plant growth. I grew basil from seeds in two different pots. One pot was exposed to pop music and one pot was exposed to punk music. The experiment took place over 38 days which were between the dates of Dec. 11, 2005 and Jan. 17, 2006. I started with 2 clay pots, 140 seeds, 2 cd players, and two different genres of music. Each plant received 414 hours and 55 minutes of light and music. The level of water was monitored daily. Photos were taken every 5 days. I measured the plants at the end of the first month. I labeled the plants Plant A & Plant B. Plant A listened to John Denver while Plant B listened to Green Day. Both of teh plants listened to the music at a volume that was low, but you could still make out some of the words when you shut the door. When it came to the end of 30 days, I measured the plants to find that Plant A, John Denver, had the tallest of them all at 1 1/2 inches, while Plant B, Green Day, with 1 1/4 inches. My hypothesis was both right and wrong. I said that Green Day would have the highest and fastest growing plant. Well, Green Day didn't have the tallest plant, but it did grow faster at first, but then slowed down. So, for my conclusion, I did find out that John Denver was the most successful, but Green Day did not die. Which surprised me after I read a lot of articles that are on my display board. They all said that one listening to hard rock would die, but this is what I got as my answer for how Music Effects Plant Growth.

Project Number: JLS002      Grade: 6

Title: Can You Remember?

Abstract: I tested six boys and girls on two sets of ten different words. This project was done to see if girls could hear better than boys because of they're gender difference. I tested the subjects on their reading and listening. When hearing and listening I gave the subjects enough time to remember the words. In listening gave them ten seconds to look at the words. The results were that the girls did better in reading and listening. Girls have a better memory because they have a lot less things going on, so they can remember more.

Project Number: JLS003      Grade: 6

Title: Guinea Pig's Favorite Foods

Abstract: I did my experiment on Guinea pigs so I can show what the pet likes and feeding times that can be more effective when the pet gets hungry. All the things I had to do is first I had to research everything about their habitat and interview a person that has raised a guinea pig. Then when I was studying I made a graph of what he eats. I care because it is great for all those who want a Guinea pig.

Project Number: JLS004      Grade: 6

Title: Got Meat?

Abstract: Why do some plants eat bugs? I bought six venus fly traps, three control and three experimental. Since bugs give the plants nutrients, I thought plants with less nitrogen in the soil would eat more bugs than plants with more nitrogen in the soil. The experimental plants got nitrogen fertilizer (worm castings) and I calculated how long it took each plant to digest a mealworm. Sadly, my experiment failed; all the traps shriveled up and fell off. Even though I can't make any conclusions, I hope to pursue this experiment again with a different type of bug!

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Project Number: JLS005      Grade: 6

Title: The Germination of Seeds

Abstract: Seeds come in all sizes. The purpose of this experiment was to see if the smallest thinnest seeds germinated faster than the bigger thicker seeds. Four different kinds of seeds were grown in a gelatin medium. Observations and data were made daily as the seeds began to germinate. The hypothesis was proven wrong since it turned out to be the bigger thicker seeds that germinated faster, and not the thinner tinier seeds.

Project Number: JLS006      Grade: 6

Title: Best Farming Techniques

Abstract: My Science project is to discover which farming techniques help to slow or stop soil erosion. To accomplish this goal I have devised an experiment that will test water erosion. In this experiment I will pour water down three different trays with a dirt sand mixture. Each tray will have different types of furrows. Tray one will have vertical furrows running north to south, tray two will have horizontal furrows running east to west and tray three will have horizontal furrows with plants. tray 1=quick erosion tray 2=moderate erosion tray 3 little to no erosion. Conclusion: Tray 3 had the least amount of soil erosion.

Project Number: JLS007      Grade: 6

Title: Electrifying Fruits & Vegetables

Abstract: The purpose of this experiment is to determine which type of fruits and vegetables are good conductors of electricity.

Project Number: JLS008      Grade: 6

Title: Which Fertilizer Works Best?

Abstract: Plants grow at different speeds, but this project showed how tall a plant can grow after adding a fertilizer. I gave 1 chive plant Jobe's®, a second Miracle Grow®, and a third Spray-N-Grow®. My control group just got water. I did this to see which fertilizer would enhance the plant best. My results after one week showed that Jobe's® was the better fertilizer, because that plant grew 12.065 cm tall, where Miracle Grow® grew 11.5887cm tall, and Spray-N-Grow® grew 11.2712 cm tall. My conclusion is that Jobe's® is the best fertilizer. My follow-up is to see if Jobe's® will do as good with ferns.

Project Number: JLS009      Grade: 6

Title: See Plants Drink!

Abstract: The purpose for completing this project is to determine how plants are capable of absorbing water into their root systems. By adding food coloring to the water and using a variety of flowers, I will attempt to discover how water travels in the root systems of the flowers chosen and if the water travels differently in each.

Project Number: JLS010      Grade: 6

Title: Effects of Different Water on Plant Growth

Abstract: My Science Fair project was based on the effects different waters would have on plant growth. I took three of the same plants and added three different types of water and watched

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daily to see which plant would grow the fastest. I chose that nursery water would cause the plant to grow the fastest but my hypothesis was wrong the spring water I used showed plant growth in ten days compared to the twenty three days or more it took the nursery water and the distilled water.

Project Number: JLS011      Grade: 6

Title: Does Music Affect Your Heart Rate?

Abstract: The heart is a very important part of your body. This work intended to learn if music affected your heart rate. Three different types of music were played to see if music affected heart rate, also no music was played. The children would walk up and down stairs while listening to the music. In the end results I determined that in Sixth Grade 1 R and B music affected the heart rate the most; I also found that in Sixth Grade 2 Punk music had affected the heart more than the other music types. As my overall results the music type R and B affected Sixth Grade 1 and 2 the most.

Project Number: JLS012      Grade: 6

Title: Can Caffeine Effect Problem Solving?

Abstract: Caffeine is a stimulant people consume everyday. they do this by eating chocolate or drinking soda pop. My experiment reveals if there are any effects of caffeine on test taking of 6th grade students. The way I tested my 11 6th grade participants was, that I gave each participant a 5 problem word problem test. Then, they drank one 12 ounce can of Diet Coke. After waiting 20 minutes for the caffeine to enter the body successfully, I gave them another 5 problem word problem test. After, I compared and contrasted the differences.

Project Number: JLS013      Grade: 6

Title: Do Vitamins Help Pumpkins Grow?

Abstract: Sometimes when we need plants the most they don't grow. What if there was a way you could grow plants and know they will grow. So I decided to try vitamins A, C, and B1. I set out ten pots and put one vitamin in each pot. I waited for a while before I took measurements. It turns out that none of the vitamins helped them grow. They just made them healthier by adding more chlorophyll. I could tell by my control group.

Project Number: JLS014      Grade: 6

Title: Let It Rain, Let It Rain

Abstract: My question was does the use of rain water, tap water, or distilled water have an effect on seed germination and plant growth. I hypothesized that rainwater will have a direct effect on the rate at which the seeds germinate and will also produce the hardier plant. I based my hypothesis on the fact that rainwater is a natural resource created by the earth's water cycle. To test my hypothesis I planted grass seed and charted the time it took for germination as well as the amount of seeds that germinated. As the grass began to grow, I observed hoe quickly the grass grew and the thickness of the grassy patch. My hypothesis was correct.

Project Number: JLS015      Grade: 6

Title: What Goldfish Need to Know

Abstract: The purpose of this experiment was to test the effects of PDP (Predigested Plankton) a patented bioprocessed natural pigment on goldfish color. Foods containing PDP are commonly

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marked as color enhancers. Two similarly sized goldfish were housed separately in two-gallon tanks for five weeks. Each fish was fed twice a day-morning and evening. The control fish, Doug, was fed Wardly Total Tropical Flake Blend. This particular blend does not contain PDP. The variable fish, Harvey, was fed NutraFin Max Goldfish Flake Food. Both fish were exposed, side-by-side, to the same lighting, both natural and room lighting. Lighting is also a factor in pigment. Every day I checked for, at least, a small color enhancement in Harvey, but, remarkably, the color decreased! Therefore, I conclude that NutraFin Max does not work

Project Number: JLS016          Grade: 6

Title: What's in Your Mouth?

Abstract: The experimenter tested three subjects, two humans, two cats, and two dogs and saw which had the most bacteria. This was tested to see which subject would be the worse to be bit by, the most serious infection. The experimenter swab the subjects mouths, and grew the bacteria from their on a petri dish. The petri dish had agar on it, to grow bacteria easier. The results were Dog 1 had forty and more dots. The cat 1 had 30 and more dots. Human 1 had seven dots. Dog 2 had 5 dots. Cat 2 had 2 dots. Human 2 had 14 dots. The conclusion was the dog had the dirtiest mouth because they had more (dots) bacteria on their petri dishes. This also proves that the dog would have the most bacteria in their mouth, and the dog would be the most likely someone wouldn't want to get bite from.

Project Number: JLS017          Grade: 6

Title: A Taste of Genetics

Abstract: Heredity and genetics are the building blocks of everything. As DNA is explored, more and more of the mysteries of life will be unlocked. My project was to tap into a simple segment of that complicated subject. I tested a known hereditary trait, the ability to taste certain chemicals, on volunteers. Most participants were tasters, as expected, because the trait is dominant, only requiring one gene of the pair to inherit. It would be interesting to get a larger sampling and compare a larger group, and even test specific families to map the genetic factors in each family tested.

Project Number: JLS018          Grade: 6

Title: Surface's Effect on Mold Growth

Abstract: Mold spores can be found nearly everywhere. Mold can either thrive, or be limited depending on environmental conditions. This work was intended to learn which of these four environmental samples would produce more mold within a certain amount of time. Four different environmental samples were taken and rubbed on dampened bread, and data was recorded over a ten day period. It was determined that samples taken from soil not only produce more mold, but also had the fastest growth in the first few days. Further study would determine what effect changes in conditions would have on mold growth.

Project Number: JLS019          Grade: 6

Title: The Effects of Smoking

Abstract: I did my project because 3 people in my family smoke. When I did my research it said you'll get different kinds of cancer. But that takes years to happen. I wanted to see the earlier effects of smoking. I interviewed the 3 people in my family that smoke. I found that the oldest smoker coughs a lot. They all have yellow teeth, fingernails, and smell like cigarettes. You should care about my project because if you started smoking not long ago then you'd see the earlier effects like coughing.

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Project Number: JLS020      Grade: 6

Title: Which Bread Has The Most Starch?

Abstract: My Project is an experiment to see which type of bread has the most starch most commonly known as carbohydrates. Instead of looking on the packaging to receive the answer to my question the experiment provided an easy and fun way to see if the bread contained as much or as little starch as the package indicated.

Project Number: JLS021      Grade: 6

Title: Do Plants Grow Larger Watered With Milk, Water, or Coke?

Abstract: Do plants grow larger watered with milk, water, or coke? This experiment will tell me what the answer is. Over the next few weeks, I will watch the growth of the plants, and how they react to the different sources of nutrients. The purpose of this experiment is to see if plants do grow larger watered with milk, water, or coke. I will take three plants and give each of them equal sunlight, but one I will water with milk, the other with coke, and the last one with water.

Project Number: JLS022      Grade: 6

Title: The Smoke Around You

Abstract: There is a growing problem in the world; too many people are beginning to smoke because they think it's a trend. I intend to learn if there is anyway to help this growing problem by informing smokers about how they are harming many of the people in their area, especially children. To do this I have tested children's lungs by using a Spirometer. I learned that those children who live in homes where one or both parents smoke had more damage to the lung than those who lived in a home that neither parent smoked.

Project Number: JLS023      Grade: 6

Title: Which Blood Types Can Be Mixed?

Abstract: If you need a blood transfusion, do you know what blood types are compatible? Sixteen cups were marked with a blood type and subscript number. Each row was filled with a different color water. Each was mixed one at a time across each row and monitored for color changes. Using a chart it was determined which ones were mixing safely. Blood types have their own characteristics, RH factors being one of them. Further research would help to determine which RH factors would be compatible.

Project Number: JLS024      Grade: 6

Title: What's Up Plants?

Abstract: The purpose for completing the project is to determine if talking to a plant actually helps the plant grow better. I would like to test and prove the myth, right or wrong, that if you talk to a plant, it will grow better.

Project Number: JLS025      Grade: 6

Title: I'm Seeing Red

Abstract: The human mind is very complicated. It holds memory, is smart, and in this experiment, it was proven to give automatic answers. For this experiment, a board with colors written in a

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color was set up. Then, the subject was told simply to say what the word color was. It then resulted in the subject making multiple mistakes, proving the human mind is automatic. The mind conflicted between meaning and color and the mind blurted out the word. The human mind can not concentrate on a color without first concentrating on the word.

Project Number: JLS026          Grade: 6

Title: How do you feed your crocus bulbs?

Abstract: Not available. Please visit student's exhibit for abstract.

Project Number: JLS027          Grade: 6

Title: Chirp or Burp

Abstract: The beverage industry is very large in size. My goal in this experiment was to determine which of three beverages is the best for your health. To do this, three separate containers of crickets were fed three different beverages, Coca-Cola, Gatorade, and water. Their behavior was recorded for seven days. After the seventh day they all received water to drink. It was determined that Coca-Cola was the preferred beverage. However, the crickets showed uncharacteristic behavior. Caffeine is a known stimulant, and may have caused their aggression.

Project Number: JLS028          Grade: 6

Title: Sleep Deprivation

Abstract: I chose my project because I wanted to know how much sleep you need for your brain to work at its best. I did my project by getting people to take a test when I woke them up at different times. I found that different ages need different amounts of sleep in order to do something. I think people should care because you should know how much sleep you need for your brain to work at its best. In my next project I will have more information on people's reaction to not enough sleep.

Project Number: JLS029          Grade: 6

Title: Permeable Building Soils

Abstract: Soils are used for many construction purposes. I intended to see what kind of soils were permeable and impermeable. I wanted to find out what soils let water through it. I put four types of soils in a jar and recorded how long it took for the water to drain. It was clear that water drained through gravel more quickly than the other soils. I would suggest to use gravel to drain out water from buildings. In the future I would use more soils than the other four to see what they are good for in building purposes.

Project Number: JLS030          Grade: 6

Title: Jiminy Crickets

Abstract: My project is on how crickets behavior was affected by the time of day. My hypothesis was that they would be more active in the day, but chirp more in the night. This was proven neither right nor wrong, because they were more active in the day. I simply observed the crickets for 10 days and recorded the results.

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Project Number: JLS031      Grade: 6

Title: There Is A Fungus Among Us

Abstract: My question was would a peach get moldy quicker in the refrigerator, garage, or kitchen counter. I thought that the peach would get moldy quicker in the refrigerator because of the moisture. I placed peaches in the above mentioned areas of my home and took the temperature of each area. I devised a way to measure the percentage of mold growth using a golf ball and rubber bands. My hypothesis was proven wrong because the peach on the counter got moldy the quickest. I think the reason for this outcome was the fact that these peaches were the only ones without a stem.

Project Number: JLS032      Grade: 6

Title: Are the Foods I Eat Healthy?

Abstract: Coaches tell athletes to eat healthy so they can be better performers. As a student athlete, I wanted to know how if the foods that I eat are healthy. In this work, I tested eleven of my favorite foods to determine if they were healthy. Sugar, fat, starch, protein and Vitamin C contents were tested on each food, using distilled water as a control. My hypothesis was that most foods were not healthy, but after testing I concluded that seven of the eleven foods were healthy.

Project Number: JLS033      Grade: 6

Title: Mind Your Music

Abstract: Music is something that many people enjoy. This work is intended to determine if music has an effect on your mental performance. Eight subjects took a test listening to different music. Some tests were conducted with no music. My hypotheses stated that I thought rock music would help one succeed in mental challenges, but classical music did instead.

Project Number: JLS034      Grade: 6

Title: A Pinch To Grow An Inch

Abstract: The pituitary gland is a small gland at the base of the brain which produces many hormones, including Growth Hormone (GH). If the pituitary gland does not produce enough growth hormone, this Growth Hormone Deficiency (GHD) means that a person cannot grow at a normal rate. To help growth, one option is to take Growth Hormone Replacement Therapy (GHRT). The hypothesis is that when GHD is treated with GHRT, the growth rate will increase. The research involved measuring height, before and after GHRT. When GHD was treated with GHRT, the growth rate increased by a ratio of 2.5.

Project Number: JLS035      Grade: 6

Title: And Away We Grow

Abstract: Plants come in all shapes, sizes, and colors. They also come with different needs to live. I intended to learn if a plant, the Brassica Rappa, could live without all of its basic needs. I split the plants into two groups the experimental and the control. During a two week period the growth rate would be recorded. This determined that the Brassica Rappa would grow best with all twenty four hours of light. It also determined that nineteen hours of light is enough to support the plant.

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Project Number: JLS036      Grade: 6

Title: Rollercoaster Science

Abstract: If you want to build a fast rollercoaster would you have steep hills or hills that gradually go down? Well, I tested it. First I got 2 hot wheel tracks that are the same length. I taped them to cardboard. After that I made one steeper than the other. Next, I got a hot wheels car and recorded how long it would take to get to the bottom. Lastly, I recorded the results on a graph and saw which one was faster. In my results the steeper track went 0.4 seconds faster. I think they are the same because they were so close. I did this project because I like roller coasters.

Project Number: JLS037      Grade: 6

Title: Take 2 Aspirin & Call Me in the Morning

Abstract: This experiment examined which group of pain relievers dissolves the fastest. Four groups of medications were tested; salicylates, acetaminophen, ibuprofen, and naproxen. From each group, three different types were used. It was determined that the salicylates dissolve the fastest, followed by the acetaminophen, and then the ibuprofen. The naproxen was left for over thirty-six hours, but never fully dissolved. These results show that different types of pain relievers dissolve at various rates. Future research could examine the effect of other substances on the dissolving rates of pain relievers.

Project Number: JLS038      Grade: 6

Title: Protists In The Water Around Us

Abstract: There are living things everywhere, even some that we cannot see with our naked eye. I looked closer at rain, pond, lake, spring, creek, and river water samples under a microscope. It was determined that there are living things in all of the water samples that I collected. I learned when you go outside and see water; there is much more living things than fish out there. When it is raining, millions of living things are falling from the sky, onto you! This experience makes me think more about what is all around me.

Project Number: JLS039      Grade: 6

Title: Color Your Memory

Abstract: Spelling tests are taken all over the place and all the time. This work is intended to learn if the color of paper you take a spelling test on effects on how well you score according to the following colors I used for my project (Green, Red, Blue, and Yellow). To perform this experiment I choose three different grades and then quizzed 10 students per grade on each of the different colors possible. After the tests were over I realized by looking at the results that the color of paper does not affect on how well you score. No work was planned for ahead.

Project Number: JLS040      Grade: 6

Title: Does Whitening Toothpaste Really Work?

Abstract: For this project my idea is to stain the teeth, and soak the teeth in a homemade solution of whitening toothpaste and water, and see if the teeth get any brighter.

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Project Number: JLS041      Grade: 6

Title: Garbage, the Other Soil!

Abstract: The purpose for completing this project is to determine which type of compost added to the soil of Lima beans will help the Lima beans grow the best. I want to try to find a different feeding method for plants rather than the everyday, chemical method.

Project Number: JLS042      Grade: 6

Title: Crystal Clear

Abstract: I wanted to know would Kosher Salt or Sea Salt grow more crystals. Materials Boiling Water, Glass jars, Salt, A spoon, Food coloring (optional), String, Pencil, Paper clip, Procedure: Boil about one cup of water for each glass. Pour the water into the glass jars. Stir in the salt slowly a bit at a time until it is saturated or the salt doesn't dissolve anymore. You can put some food coloring in the water if you want. Tie one end of a piece of string around a pencil and tie a paper clip to the other end. Place the pencil over the jar so that the string hangs down and the paper clip almost touches the bottom of the jar. Allow the jar to sit somewhere where it won't be disturbed. Check every 24 hours and you'll see crystals forming in cubical shapes. I experimented for 23 days. In the time of 23 days I know that Sea Salt will grow more crystals than Kosher Salt.

Project Number: JLS043      Grade: 6

Title: Speed of Decay

Abstract: The purpose of this investigation, Speed of Decay, was to determine if yeast and water speed the decay of bananas on a sunny windowsill. Slices of bananas were placed in sandwich bags along with certain manipulated variables (water, yeast), while others containing only banana slices. After initial observation, it was recorded how long it took the samples to decay. Data was then recorded and displayed on a graph. After analyzing the data, it was concluded that the reason the bags containing yeast and water decayed faster was because yeast is made up of millions of microorganisms that break down food.

Project Number: JLS044      Grade: 6

Title: Teen Peer Pressure, Preparing For It!

Abstract: The reason I chose my project is because I am interested in how peer pressure affects behaviors related to drugs, alcohol and sex in teens. I researched peer pressure, sex, alcohol and drugs. I wrote a questionnaire then had student sin 6, 7, and 8 grade complete it. I scored the results. The results are surprising and I would like to expand my survey.

Project Number: JLS045      Grade: 6

Title: Diabetes Monitoring System

Abstract: I did my experiment because my grandpa has diabetes and I wanted to know more about it. I did my procedure by having my grandpa prick his finger and test his sugar. I found out that different types of food you eat effect your reading, and you can get diabetes from being overweight or from family. My project is important because it helps you see if you sugar is too high or low you can look at your monitor and find out you can keep it in range.

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Project Number: JLS046      Grade: 6

Title: Moss Growth

Abstract: I chose to do this experiment because I wondered in what conditions does moss grow better in. I gathered moss, and placed one in a box and the other on a tray. The one on the tray would receive light, but the one in the box would continually stay in the dark. I checked on them everyday. On the sixth day, I noticed that the moss in the box was growing brown, but the moss on the tray looked the same. This tells me that moss would grow better in the light, and my hypothesis was incorrect.

Project Number: JLS047      Grade: 6

Title: Does Font Color Affect Test Scores?

Abstract: My project is Does Font Color Affect Test Scores? In my experiment I am testing to see if font color will have a better or a worse outcome in test scores than black font. I thought that it would have a difference and that it would be worse or that the same. I tested 20 people for both tests. I concluded that it did make a difference and that the font colored test was worse than the black font test by a few percentages. I hypothesized correctly.

Project Number: JLS048      Grade: 6

Title: Memory: Recall

Abstract: Not available. Please visit student's exhibit for abstract.

Project Number: JLS049      Grade: 6

Title: Electroculture

Abstract: Not available. Please visit student's exhibit for abstract.

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Project Number: JCS001      Grade: 6

Title: Aspirin, Molecules, and Heat

Abstract: Aspirin is a big part in a lot of people's lives. The work I intended to do was to test three different brands of aspirin to see which one of them began the beginning of dissolution of the coating the quickest in different temperatures of water. I found out the thicker the coating of the aspirin the longer it took for the beginning of dissolution of the coating. I also found that the warmer the temperature the faster the beginning of the coating dissolution starts.

Project Number: JCS002      Grade: 6

Title: Squeaky Clean!

Abstract: The purpose for completing this project is to determine which window cleaner works best at removing stains from a window. I want to determine which window cleaner is the safest, best at cleaning, and best for the cost a consumer will pay. There are different ingredients used in the cleaners, and I would like to determine if those different ingredients factor in which one works better than the others.

Project Number: JCS003      Grade: 6

Title: What Toothpaste Whitens Teeth Best

Abstract: There are many brands of toothpastes and I have chosen these four to evaluate on which one will make your teeth the whitest. They are Arm & Hammer, Crest, Ultra Brite and Equate Whitening Toothpaste. I will determine the conclusion by a point system by giving first place the most points. I will place a hard boiled egg in my apparatus and brush the egg for two minutes twice a day. My hypothesis is Crest which was rejected because Arm & Hammer came in first place.

Project Number: JCS004      Grade: 6

Title: Battle of the Bats

Abstract: Softball players are interested in hitting the ball as far as they possibly can. Which type of bat, though, will hit a ball farther, wooden or aluminum? This is the question I tried to answer. I thought that the aluminum bat would be best because it seems to be more solid. I built a device that would spring back and hit a softball off a tee, and then I measured how far the ball traveled. It turned out that I was right. The aluminum bat hit the ball farther.

Project Number: JCS005      Grade: 6

Title: Waterproof Mascara, or Is It?

Abstract: Women are concerned about how they look. If waterproof mascara isn't used, when a woman cries black streaks will run down her face. Many women try waterproof mascara. How does this work? Four different waterproof mascaras were used in the experiment. Water was poured over the eyes to see if the mascara would run. All waterproof mascaras contain special synthetic formulas that are meant to repel water. It's usually some type of fat because fat repels water or is hydrophobic. Common to all waterproof mascaras were the ingredients petroleum distillates and polymer resins. The Food, Drug and Cosmetic Act don't require any company or industry to disclose what exactly is in the different products. This allows for more competition. They do perform safety testing on animals, tissue cultures, or computer models. Waterproof mascara has good and bad qualities. The good being that it won't smudge or run, leaving black lines running down your face even if you cry and rub your eyes. The bad aspect of using

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waterproof mascara all the time is that it can be very harsh on your eyelashes. It can make them dry and brittle. The best way to remove waterproof mascara is to use baby oil or some type of oil based make-up remover. After testing, the Covergirl mascara was the best, but was very hard to remove. NYC was good, but it really wasn't waterproof and smudged.

Project Number: JCS006      Grade: 6

Title: The Zeer Pot

Abstract: Zeer Pots use evaporation in hot climates to refrigerate food. I wanted to find out if it really worked. I made a clay Zeer Pot, tracked the temperature inside the pot and compared it with the outside air temperature. The Zeer Pot wasn't very effective at room temperatures because the temperature inside the pot was only five to ten degrees cooler and adding water to the pot made little or no difference. A Zeer Pot made of glass also did not work. I recommend repeating the experiment on a hot day to see if more rapid evaporation makes a difference.

Project Number: JCS007      Grade: 6

Title: Regular or Unleaded?

Abstract: The purpose of this experiment was to determine if a higher grade of gasoline would allow a vehicle to travel more miles per gallon than a lower grade of gasoline. In order to conduct this experiment I first filled the gas tank of the car with Super Leaded gasoline. Within the days of Monday to Sunday the vehicle had driven 170.3 miles on 11.910 gallons of gasoline. Next, I filled the gas tank with Unleaded gasoline. The vehicle then drove 222.4 miles on 11.910 gallons from Sunday to the following Sunday. I conclude that Unleaded gasoline will last more days and travel more miles in a vehicle.

Project Number: JCS008      Grade: 6

Title: Can a Driver Go the Distance?

Abstract: The purpose of the experiment is to determine if metal (especially enhanced metal) allows a golf ball to be driven a longer distance. To determine the effects of the club head, I devised a testing stand to bounce a golf ball using gravity and measured how high the ball would bounce. The data I collected was a series of five measured by bounces per club. I tested a total of seven clubs (five metal and two woods). The conclusions were that the Titanium metal head clubs allowed the ball to bounce higher, thus allowing a further driving distance.

Project Number: JCS009      Grade: 6

Title: Dawn Dishwashing Detergents!

Abstract: It seems that every year that there is a new product of dishwashing detergents from Dawn. I am testing five of their products and would like to determine which works the best when cleaning different substances off of plates. I want to see which one is best to use for the price that consumers pay.

Project Number: JCS010      Grade: 6

Title: Does Crest White Strips Whiten Teeth Better Than Toothpaste?

Abstract: Using 3 test subjects, I will take before and after photos of their teeth and compare them to determine if the White Strips work better than toothpaste for whitening teeth.

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Project Number: JCS011      Grade: 6

Title: The Speed Of Email

Abstract: Email has changed the speed at which we communicate with each other. In this experiment I wanted to see how fast email is and if email took longer to travel with greater distance. I started my experiment by emailing people inside and outside this country and waited for replies. I observed fifty email headers. Surprisingly it showed that it may takes less time to receive an email from a foreign country than from within the United States. More research will be done on a greater sample to see if this trend is true.

Project Number: JCS012      Grade: 6

Title: Methods of Making Popcorn

Abstract: People love to eat popcorn, but do they know which method produces the least amount of unpopped kernels. This work is intended to find out which method pops the most kernels. Three different methods are tested, microwave method, pan (stove top) method, and the hot air (popcorn machine) method. The pan (stove top) method was proved to be the most reliable method of popping popcorn, popping the most amount of kernels. I hope that people take this information in consideration when making their next batch of popcorn.

Project Number: JCS013      Grade: 6

Title: What Stain Remover Works Best?

Abstract: The reason I did Stain Remover is because, I get a lot of stains in my clothes. I also wanted to know what stain remover works the best so I do not have to waste money on stain removers that do not work. I tried three different stain removers. They were Spray and Wash, Clorox, Shout. Spray and Wash worked the best, then Shout in second, Clorox came in last.

Project Number: JCS014      Grade: 6

Title: Taste of Water

Abstract: The purpose of this experiment was to see if people really preferred bottled water more than purified tap water, or did they just say they did. When doing my procedure, I poured out three bottles of Dasani purified water. Then I filled up these three bottles with filtered (Pur filter)tap water and marked them "B". I left three bottles of Dasani alone and marked these bottles "A". I marked cups "A" and "B". I filled the cups with the matching type of water. I asked my 6th grade class to taste each and decide which water they preferred. The end result was "A" or Dasani purified water received 4 out of 18 votes, "B", or the filtered tap water received 8 out of 18 votes, and "C", or can't tell the difference received the remaining 6 out of 18 votes. In conclusion, my hypothesis was correct. Filtered tap water was preferred over the Dasani purified water.

Project Number: JCS015      Grade: 6

Title: Staining

Abstract: The purpose of this experiment was to see which liquid stained teeth the most. I decided to use eggs in my experiment since they are made of calcium like teeth. I soaked the eggs in four different liquids: grape juice, tea, coffee, and cola. I poured 1/2 cup of each of the liquids into 3 cups and placed an egg in each cup (for a total of 12 cups). For each liquid, I left the eggs in for 1 day, 2 days, and 4 days. After Day 1, grape juice had the darkest stain, followed

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by coffee, tea, then cola. After Day 2, grape juice had the darkest stain followed by coffee, cola, then tea. After Day 4, grape juice had the darkest stain for a third time, followed by cola, coffee, and then tea. In conclusion, my hypothesis was correct. Grape juice did leave the darkest stain after every timeframe.

Project Number: JCS016      Grade: 6

Title: Pur-r-rfect

Abstract: My project is which cat litter is the most absorbant. The cat litter I normally use does not seem to be very absorbant. My results showed that this was in fact true. I also found out that the scoopable cat litter was the most absorbant and the paper chips were just as absorbant.

Project Number: JCS017      Grade: 6

Title: DOES HALF-WAVE MAKE "CENTS"?

Abstract: The purpose of my experiment is to determine if this practice is economical. For several wattage bulbs, both a full and half sine wave were applied while the power consumption and light intensity were measured. I found that the average power reduction was 42% while the average light intensity reduction was 72%. The practice of installing a diode on lights is not economical, as the average efficiency drops from 27fc/watt to 13fc/watt, which means twice the dollars per foot-candle of light.

Project Number: JCS018      Grade: 6

Title: Do Brita Filters Alter pH?

Abstract: Brita filters make drinking water taste better and take out certain impurities. I wondered if Brita filters also alter the pH level. Research has shown that water with a higher pH (more alkaline) is linked with better health. I tested the pH level using litmus strips both before and after the water was filtered. I found that the pH level was approximately 6.0 (slightly acidic) in all my trials – with no substantial change in pH. My homemade filter gave very similar results. My conclusion is that Brita filters don't make your water healthier to drink based on pH level.

Project Number: JCS019      Grade: 6

Title: Acid's Effect on Bean Plant Growth

Abstract: The purpose of my experiment was to determine if increased levels of acid would affect bean seed germination. The seeds were soaked for 24 hours in water/vinegar solutions (in decreasing 10% gradations) beginning with 100% acid down to 0% acid. The seeds were then planted in potting soil in Dixie Cups and germination was observed and recorded for two weeks. Only the seeds soaked in 0% acid germinated. The seeds treated with acid molded and rotted. My hypothesis that acid will affect germination was therefore correct.

Project Number: JCS020      Grade: 6

Title: Splatter Patterns

Abstract: Paintball has developed into a competition of skill and accuracy. There are a lot of different paintball available. My experiment was to see which paintballs are the most accurate. I took a marker and clamped it to a stand to keep it from moving. I secured a target to plywood 35ft away. I took 5 different paintballs from 3 different manufactures, and fired a group of 5 paintballs. The more expensive Paintballs made smaller splatters, and were more accurate. The less expensive ones were less accurate, but provided a larger splatter.

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Project Number: JCS021      Grade: 6

Title: Do Pricey Detergents Clean Better?

Abstract: My purpose is to find out if less expensive laundry detergents clean as well as expensive detergents. I put a grass stain on each shirt and then, washed each shirt in Era, Member's Mark, Cheer, and Tide. I dried each shirt. I compared the price and the stain of each detergent and shirt. Member's Mark did the best at about 95%. Tide came in second place at about 80%. Cheer came in third with about 60%. Era came in last place with about 20%. My hypothesis was half right; one cheaper brand did the worst while the other did the best.

Project Number: JCS022      Grade: 6

Title: Dueling Diapers!

Abstract: The purpose for completing the experiment is to determine which diaper tested will absorb the most liquid. Diapers are expensive, and I would like to inform consumers of the best type of diaper to use on a small child based on absorbency and cost.

Project Number: JCS023      Grade: 6

Title: Sold By Weight

Abstract: Have you ever looked in a bag of open potato chips and thought, "Is this really the correct amount of food in this package because it looks more than half empty?" Well, I have and my project is based on this question. I weighed twelve products on both Shop n Save's and Bena Casa home scale. I discovered that nine manufacturers gave the consumer additional amounts of food than what was stated on the package. Two manufacturers gave the consumer the exact amount of food, and lastly one manufacturer, which was Allen's Potato Sticks, gave the consumer less amount of the food.

Project Number: JCS024      Grade: 6

Title: Blame it on the stain!

Abstract: The purpose of the experiment that I am completing is to determine which type of laundry detergent cleans five different stains on a t-shirt the best. I want to complete this project based on what the cost of laundry detergents are and the ads that claim that each product is the best.

Project Number: JCS025      Grade: 6

Title: Math Pattern in Bach's Music

Abstract: Johann Sebastian Bach was a famous composer who created many famous musical pieces. This experiment is designed to see if there are any mathematical patterns in the compositions of Bach's preludes and fugues containing the pedal, bass, and treble staves.

Project Number: JCS026      Grade: 6

Title: Blame It On The Rain!

Abstract: The purpose of this experiment is to determine whether weather proof deck paints, exterior-interior oil based paints, interior-exterior high gloss latex paints, interior - exterior satin latex paints, and automotive paints used will dissolve or remain unchanged if exposed to an acid rain mixture prepared by myself.

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Project Number: JCS027      Grade: 6

Title: Crayola versus RoseArt

Abstract: Coloring with crayons is a fun way of expressing a persons feeling. I intend to learn what brand of crayon is the strongest out of the Crayola brand crayon and the Roseart brand crayon. What I did was simply drop crayons on a wooden board and record how many times until the crayon broke. Once I had averaged the drops for each brand, RoseArts average was higher than Crayola's average. So it determined that the RoseArt brand crayon is stronger than the Crayola brand crayon.

Project Number: JCS028      Grade: 6

Title: Does Temperature Affect Paint?

Abstract: Many consumers' use various types of paint to decorate or protect there house. There are many types of paint such as: Oil for outside or for use on metal, Latex for inside, wood and many other surfaces, enamel and acrylic for yet other custom uses, epoxy is used for durable surfaces like garage floors or hospital operating rooms. I wanted to test the 2 most commonly used paints (oil & latex) in the market. I tested them in harsher condition than what would regularly endure in an effort to get the paint to fail faster than what nature will provide.

Project Number: JCS029      Grade: 6

Title: Which Filter Purifies H2O the Best

Abstract: The purpose of my experiment is to test the best filter for purifying tap water. A colored water solution was carefully prepared. A funnel lined with a fresh paper coffee filter and cheesecloth on top of the paper was the instrument to hold each tested filter. Three filters were tested in the experimental group: sand, activated charcoal, and gravel. The control group just used the funnel and coffee paper filter. Colored solution was poured four times through this filtering device. Coffee paper and cheesecloth were changed each time the solution was poured. The basic thought of this experiment is that the filter that removes most of the coloring from the test solution is the most efficient filter. Results indicate that sand, not activated charcoal, as the hypothesis stated, is the best filter for water. In order of effectiveness of filters are: sand, activated charcoal, and gravel. Future experiments could test the speed at which the tested filter cleared the water. Also, other tested filters could be used.

Project Number: JCS030      Grade: 6

Title: Which Food Handouts Contain More Bacteria?

Abstract: My Project is "Which pretzel sample carries the most bacteria?" Four samples were taken (store, party #1, party#2, and control [newly opened bag]). Each were exposed for three hours and taken using "No Touch Technique". Pretzel samples were tested in two ways: agar petri dish and liquid broth. The liquid broth was taken for twenty-four hours and then taken to a plate and incubated. Results were:

- Control Group- no pathogens
- Party #1 and Store- Coag Negative Staph, Alpha Hemolytic Streptococcus, Diptheroids, and Saliva Nisei.
- Party #2- Coag Negative Staph, Alpha Hemolytic Streptococcus, Diptheroids.

In conclusion, the store pretzels had bacteria, but not the most. So watch were you put your hands when you eat food samples.

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Project Number: JCS031      Grade: 6

Title: Hydration Education

Abstract: The purpose of my experiment was to explore the question, "is Gatorade the best type of hydration drink on the market?" I wanted to find out for myself. I had 3 people participate in physical activity for 4 days. Each day they were to try different drinks to see if it helped them with hydration. The drinks included Gatorade, Powerade, water, and chocolate milk. They were to answer a set of questions each day. Using a scale from 1-10 with one being the least effective and 10 being the most effective in alleviating their hydration each participant rated each drink. Powerade scored the highest with 7.3 followed by Gatorade (7.2), water (6), and chocolate milk (5). Powerade was preferred over all other drinks.

Project Number: JCS032      Grade: 6

Title: Don't Cry Over Spoiled Milk

Abstract: The experiment was to get five different types of milk (soy, skim, chocolate, whole, acidophilus) and check them daily to see which spoiled. The purpose of this experiment was because I wanted to find out why there are expiration dates on milk cartons. I got the milks and then I put them in containers. I stuck the milks into the refrigerator. I checked the milks daily for how much they spoiled. I tasted them, looked at the texture, and smelled them. I wrote down the information in my journal. The results were that skim spoiled first, then chocolate, then whole, then acidophilus, then soy. The conclusion was that my hypothesis was proven incorrect and that the characteristics of milk affects how fast they spoil.

Project Number: JCS033      Grade: 6

Title: Moldy Bread!

Abstract: The purpose for completing this project is to determine which type of bread will mold the quickest. I expect to find that bread with no preservatives will mold the fastest.

Project Number: JCS034      Grade: 6

Title: Which Types of Bread Molds Fastest?

Abstract: My project is what bread mold's fastest? The purpose of this experiment is to see which grocery store bread will last longest for the amount you are paying. The procedures are to gather 3 bread types, moisten paper towels and wrap bread in them, then cover with aluminum foil, then leave in a dark, warm place for 7 days and compare results. The wheat bread will last you longest for your money.

Project Number: JCS035      Grade: 6

Title: Old vs. New

Abstract: The purpose of my experiment is to find out which type of rechargeable battery is better, the newer or older one. I picked Nickel Metal Hydride for the newer one and Nickel Cadmium for the older one. The procedures that I used in this project were first I bought the batteries and charger. Next I drained two of each battery to its fullest extent. I then charged two of the same batteries for ten minutes. After they were done charging, I let them run in my compact disc player for as long as the battery would last. I marked how long it took for the batteries to run out. I did the same steps for the other two batteries also. I recharged and ran out all four batteries twenty times each. At the end when all of my data was collected, I found out that the nickel cadmium was more consistent, while the nickel metal hydride was all over the place in holding a

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charge. The only thing is, since the Nickel Metal Hydride is newer, it holds twice as much energy as the Nickel Cadmium does. It also takes five hours to charge, but the Nickel Cadmium only take two hours to charge. My conclusions for this project are that if you only use the batteries for a little then get the Cadmium, because it only takes two hours to charge. If you are using batteries for a long period of time, then choose the Metal Hydride.

Project Number: JCS036      Grade: 6

Title: It Keeps Going and Going!

Abstract: The purpose for completing this project is to determine which type of batteries tested will work the longest. Using five flashlights, I will test Rayvac batteries, Eveready Super Heavy Duty Batteries, Energizer Max Batteries, Fujinorel Batteries, and the batteries that came with the flashlights. I want to determine which is best based on length of time the batteries last and cost.

Project Number: JCS037      Grade: 6

Title: Does Font Size Affect Typing Speed?

Abstract: Many people use computers on a daily basis. This project attempted to find out if typing speed was influenced by font and or background color. The subjects were given timed typing tests, in which paragraphs were typed in 10 font and 14 font black type on white background and 10 font and 14 font black type on blue background. Test paragraphs were very similar in character and word number, but not identical. the project research indicated that typing speed was faster using 14 font black on white background and slower using 10 and 14 font on blue background.

Project Number: JCS038      Grade: 6

Title: Which Wood Glue is Strongest?

Abstract: The Purpose of this investigation is to determine which brand of wood glue is strongest. Wood dowels were cut into equal lengths and glued end to end using five different brands of glue. Pressure was applied to the glued joints using a spring scale. Starting with lowest spring scale and increasing as needed, the scale was pulled until the glue joint broke. The force required to break the joint was measured in Newtons by observing the number on the spring scale and recording it. Titebond required the most force and is the strongest glue.

Project Number: JCS039      Grade: 6

Title: Tooth Decay

Abstract: Many of the common beverages such as; coffee, Pepsi, Diet Pepsi, and Gatorade can harm your teeth. This work intended to learn which beverage decayed teeth the most. Four cups were set out, all of them consisting the listed beverages. I put a baby human tooth in each one and compared them to each other to see how much decay took place. I recorded observations, and I found that Gatorade was the most damaging to teeth. This could help you for future dental care by knowing not to consume as much Gatorade as usual.

Project Number: JCS040      Grade: 6

Title: There may be lead in your candy!

Abstract: Please visit student's exhibit for abstract.