72nd PITTSBURGH REGIONAL SCIENCE & ENGINEERING FAIR

JUNIOR DIVISION

STUDENT PROJECT ABSTRACTS

April 1, 2011

TABLE OF CONTENTS

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.

PHYSICAL SCIENCE - JUNIOR (6TH GRADE) - JPS

Project Number: JPS001 **Grade**: 6

Title: Fire Magnets

Abstract: My experiment was to determine which materials move back and forth the best when using a heated magnet. I used another magnet and also Nails and Nickels. For my procedure, I am going to set my materials in position and then set the candle on fire and put the magnet hanging from the fire and also do that to the nickel and the nail. For my data, the magnet worked continuously. The nail moved slowly for about 2 minutes. The nickel moved quickly for about 3 minutes. My conclusion was that thought that only the magnet and the Nickel were going to swing. My future idea that I had was can I make a magnet attract to other things instead of odds all the time

Project Number: JPS002 **Grade**: 6

Title: Melting, Melting, Melting

Abstract: My question for this project was “What Hershey’s chocolate melts the fastest: white chocolate, milk chocolate, or dark chocolate?” I had taken 10g of each chocolate, then I had taken a double boiler with 1.5L of water in it and put it on the stove that was set to medium. I then put each type of chocolate in (all at different times) the top of double boiler. I used a stopwatch and timed how long each type of chocolate took to totally melt. I then recorded the results on a chart. The results were milk chocolate melted the fastest, then white chocolate, and then dark chocolate.

Project Number: JPS003 **Grade**: 6

Title: Which Juice Has The Most Vitamin C?

Abstract: The purpose was to determine which fruit juice contains the most vitamin. Fruit juice (pineapple, white grape, orange, apple) were tested for vitamin C using an iodine and cornstarch indicator. The least amount of juice needed to turn the indicator clear represents the most vitamin C. Data was displayed in a data table and bar graph. Pineapple juice contained the most vitamin C.

Project Number: JPS004 **Grade**: 6

Title: Which Plastic Lens is More Durable

Abstract: The purpose is to see which plastic lens is more durable so that consumers may have safer eyewear. Procedure includes taking ten of each Trivex and polycarbonate lenses, and hitting each 10 times with a hammer. Take 10 of each Trivex and polycarbonate and pour 2 milliliters of acetone on each lens, letting it soak for 10 seconds. Take 10 of each Trivex and polycarbonate lenses and drop from no more than 6.1 meters. The polycarbonate data included no damage done to the dropped lenses, only one lens was effected by acetone, and up to 16 scratches on each lens, and between one and three cracks. No damage was done to the dropped Trivex lenses or those soaked in acetone. Four Trivex lenses were not damaged when hit with a hammer and six broke with no scratches. Polycarbonate and Trivex lenses were damaged when hit by a hammer, Trivex proved to be more resistant. Every polycarbonate lens hit by the hammer had deep scratches or cracks, while Trivex broke 6 out of 10 trials and the breaks were clean, without scratches. When polycarbonate and Trivex lenses were soaked in acetone, only one polycarbonate lens showed a small crack. When

being dropped from 3.53 meters onto a hard surface, neither polycarbonate nor Trivex lenses were damaged.

Project Number: JPS005 **Grade**: 6

Title: Can Vitamin C Inhibit Oxidation

Abstract: Antioxidants, such as Vitamin C, are found in various foods and are known to promote good health. Oxidated damage of cells can play a large role in disease. Antioxidants prevent the oxidation of molecules which can damage cells. Banana slices were treated with Vitamin C, lemon juice, or were untreated and the oxidated damage displayed by the discoloration of the banana slices observed over time. The degree of discoloration was directly related to the amount of Vitamin C used in treatment. The
greater the amount of Vitamin C, the less discoloration observed. Antioxidants can prevent oxidated cellular damage.

Project Number: JPS006 **Grade**: 6

Title: Biofuel from Algae.

Abstract: Algae Bio fuel production is a fun, tiring and dirty work. I really mean dirty. My family was sick because of the smell of petroleum, algae and diesel. I dealt with petroleum and diesel fuels in this project. In this project, you simply have to cultivate algae to produce oil and culture that to become Biodiesel that could be used to.

Project Number: JPS007 **Grade**: 6

Title: Slap Shot

Abstract: My purpose is to find out if a wrist shot is more accurate than a slap shot. I had 5 people take 20 shots on net (10 wrist shots, 10 slap shots) aiming for a 15 centimeter hole in a fake goalie net cover. Then I marked where each shot went on a drawing of the target and the area around the net. I then measured the distance from the target in centimeters with a scale ruler for each shot. I then made the distance into averages for each person’s slap shots and wrist shots. Finally, I made the averages into a double-bar graph.

Project Number: JPS008 **Grade**: 6

Title: Diatomaceous Earth to the Rescue

Abstract: The purpose of this experiment was to see if Diatomaceous Earth would be more effective at cleaning up oil than Dawn Dish Detergent. To conduct this experiment I took two buckets and filled them up with water, then I put oil in them, next I poured Diatomaceous Earth in one bucket and poured Dawn Dish Detergent in the other, finally I did three trials and saw which one was more effective at cleaning up oil. The experimental results were measured by observation of the experimenter. The results of this experiment were that Diatomaceous Earth was more effective at cleaning up oil then Dawn Dish Detergent. The results indicate that the hypothesis should be correct, because Diatomaceous Earth did clean up more oil and was more effective than Dawn Dish Detergent.

Project Number: JPS009 **Grade**: 6

Title: Can Water Float on Water?

Abstract: The reason I did my project was to find out more about ocean water density, and just density. First tape four of the same kinds of water bottles next put an even amount of water in them each. take the same amount of salt; put it in the water. Third Put food die in the water, this is so you can reference them later. I had figured out that salt affects the density of hot and cold water extremely. Salt affects density more than hot\cold water.

Project Number: JPS010 **Grade**: 6

Title: Keep It Clean

Abstract: My science experiment is what gender washes hands more. I wanted to do this project because I wanted to find who washes hands more. I will be using a Ultraviolet Pen Light to test the germs on their hands. The data I am going to collect is male hand washing and female hand washing. My conclusion will be that females wash hands more.

Project Number: JPS011 **Grade**: 6

Title: Will a cellular produced electromagnetic field harm seed germination plant growth?

Abstract: Cell phones studies are mixed. Some claim they are beneficial and some claim they are armful. My experiment tests whether a cell phone generated electromagnetic field affect seed germination and plant growth? Two identical containers were prepared for germination. One, Container A, was exposed to a cell phone. Data was collected about seed germination percentages and plants' lengths. As hypothesized, I found Container A seeds germinated faster and plants grew faster than Container B counterparts. Seeds exposed to cell phone generated electromagnetic field germinated faster and plants grew faster. In the future I will use different seeds and different cellular phones.

Project Number: JPS012 **Grade**: 6

Title: Which Candle Burns Fastest?

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

Project Number: JPS013 **Grade**: 6

Title: Lightning Strike

Abstract: Static electricity is the buildup of electrical charges on the surface of an object and is released as a spark. Experimenting with a Styrofoam plate and aluminum foil pie pan along with nylon or wool material in a dry atmosphere, static charges were created by rubbing the material over the Styrofoam. It was determined by rubbing a variety of materials for a various amount of time over the Styrofoam plate created different amounts of static electricity. The surface and material must be dry to create static electricity. A Basic of Static Electricity was referenced for this project.

Project Number: JPS014 **Grade**: 6

Title: Video Games and Blood Pressure

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

Project Number: JPS015 **Grade**: 6

Title: What Temperature Do Crystals Grow Best

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

Project Number: JPS016 **Grade**: 6

Title: How Do Volcanoes Erupt?

Abstract: In my project, I am trying to find out how magma escapes from its chamber. Does the magma push the plates out of the way to travel up to the volcano? Or do the plates naturally move apart? This is what I am trying to figure out in my science fair project. To do this, I am going to create a model volcano and create two plates to go along under it. Then I'll put soil in a container. After a dig a tunnel and place a cup there that will be my magma chamber. Once that's done, I will place the plates in a way so that it covers the chamber and be balanced by the soil. Then I'll cut a hole at the bottom of a plastic bottle, which will be my volcano. I'll then place my volcano on top of the plates. Next I'll make my magma. I'll do this by filling ¾ of the magma chamber with water. Then I'll add red dye to identify it as magma. After that, I'll put 1 teaspoon of each baking soda and vinegar, and then I'll record what happened during the experiment.

Project Number: JPS017 **Grade**: 6

Title: Moving in Water: Do Hot & Cold Water Mix?

Abstract: I wanted to do the project because when I jumped in my pool in the summer I noticed that it was cold on the bottom and hot on the top and my pool is also in the shade so no sun light can hit it and make it feel different. My procedures are first, I will put hot and cold water into two different cups. Next, I will put blue food coloring in the cold water. Then, I will dump them into a sink or large pan. Last I will see if they mix.

Project Number: JPS018 **Grade**: 6

Title: Investigating Rope Strength

Abstract: I made three types of rope, each out of three strands of string. I wanted to see which type of rope would hold the most weight. One was braided, one was twisted, and one was just three straight strands hanging together. I tied them to a beam in our basement and put a bucket on the end of each rope. The bucket started with twenty pounds. Every thirty seconds I added a pound until the rope broke. I did this five times with each kind of rope. I found out that the straight, untwisted rope held the most weight.

Project Number: JPS019 **Grade**: 6

Title: Rockin' Candy

Abstract: I wanted to pick a project that I could enjoy doing. I decided to make candy. I wanted to see if corn syrup would have an effect on hardening time of candy. I decided to use one other sugar that would replace the corn syrup. I decided to use brown sugar. I made 2 batches of candy with each of the two sweeteners and recorded hardening time. My hypothesis is that using different sugars would not affect the hardening time of candy. My hypothesis was correct.

Project Number: JPS020 **Grade**: 6

Title: Mass and Height Makes It Right

Abstract: The purpose of my experiment is to determine how acids affect the mass and height of cupcakes. My question is how do acids affect the mass and height of cupcakes. The procedures use will to find out the mass and height of cupcakes when I substitute the different acids. I think the cooking sherry will have the larger mass and taller height. The lemon and lime juice is will both be larger mass and shorter height. The reason I think this will happen because cooking sherry is mostly used. My future topic is to do different acids for example soda, salt, and rainwater.

Project Number: JPS021 **Grade**: 6

Title: Do Flying Rings Fly Further than Frisbees?

Abstract: Aerobies (flying rings) fly farther than Frisbees (flying disks). Would a Frisbee with a hole in the center fly farther than one without? I compared three identical Frisbees-one with no hole (control), one with a 3.8 cm hole, and one with a 8.9 cm hole. I threw each of the Frisbees 12 times, measured the distance flew, and computed the average of the interquartile range. On average the control went 25.88m, the 3.8 cm hole Frisbee went 21.03m and the 8.9 cm hole Frisbee went 14.93m. Therefore a Frisbee with a hole does not fly farther than a regular Frisbee, even though an Aerobie does.

Project Number: JPS022 **Grade**: 6

Title: Speed at which Specific Solids Melt

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

Project Number: JPS023 **Grade**: 6

Title: Brick by Brick

Abstract: The reason for doing this experiment was to see if it is possible to build a structure out of plastic bricks that can support a 12-year-old child. The procedure I used was building small models of different types of bridges. I then stepped on them with both feet to see if they would support my weight. The first type of bridge I built was my own design. The second type was a truss bridge. The bridge of my own design broke immediately after I stood on it. The second type did not break even with the added pressure of jumping.

Project Number: JPS024 **Grade**: 6

Title: Firepower

Abstract: My purpose was to find out how thermoelectricity compared with other forms of kinetic energy electricity producers. I collected data by, every 30 seconds for ten minutes, writing how many volts the multimeter was reading at that time, and then averaged that. I analyzed my data by using this formula: Volts * current squared = watts = Joules per second, or Jps = v*I^2. I got an average of 3.15 volts, but the resistance and current reduced it down to 0.000149 Joules per second. Overall, Thermoelectric energy
has very low efficiency, making it a not very good choice over other energy producers.

Project Number: JPS025 **Grade**: 6

Title: Tumbling Archways

Abstract: The purpose of my experiment is to test the strength of arches and how much weight they can withstand based on their height. The procedures used were, first making a stabilizer for the arches. Then I made the two arches for each arch height. The heights were 80cm, 100cm, and 120cm.I then slid a bucket on the first arch and put the arch into position. I proceeded to adding pennies to the bucket. I continued to do this procedure for each arch until I have found out how much weight each arch was able to hold before breaking. I then recorded the data and find out which arch holds the heaviest load based on the arches height. The data was the smallest arch having an average of 6.45kg, the medium arch having an average of 8.15 kg, and the large arch having an average of 8.25kg. My conclusion was that the largest arch was able to withstand the most weight. My future idea for this topic is to test the strength of domes.

Project Number: JPS026 **Grade**: 6

Title: Fruit Power

Abstract: Why I chose this experiment was to find out if a fruit can really produce an electrical current. I knew that different types of fruits would give many different results. I would test oranges, tomatoes, lemons and grapefruits. These all are high in citric acid. The procedure for this experiment is pretty straight forward. I place a Zinc nail on one side of the fruit and place a Copper wire on the other side. Once this is done you can then attach the Multimeter and record your results. The tomatoes won.

Project Number: JPS027 **Grade**: 6

Title: Got Mold?

Abstract: The purpose of this experiment was to determine, on which of 3 types of bread, would mold grow the fastest. Mold growth compared among 3 groups, white, wheat and rye bread. The bread was monitored daily for mold growth. A slice of bread of each type was moistened with water and placed in each of 3 separate zip lock bags. These 3 zip lock bags were left at room temperature with moderate exposure to light. These three breads were monitored daily for mold growth. The day of the initiation of mold growth was noted and photographed.

Project Number: JPS028 **Grade**: 6

Title: Robo-Mazart: A Robotic Violin Tuner Prototype

Abstract: In my project, I built a prototype of a robotic violin tuner, a device which could tune a violin more accurately than a human. I used a signal-processing program to analyze the sound frequency, and used a Basic Stamp microcontroller to turn the violin's fine tuner to attain the target frequency. To test my device, I set my violin string to a certain frequency and tuned it myself. Then, I repeated the process, using the device to tune it. I analyzed the results and concluded that my device was able to tune a violin more accurately than I could.

Project Number: JPS029 **Grade**: 6

Title: A Study of Resistance

Abstract: The purpose was to determine which surface material displayed the most resistance making it the least slippery. A pulley system pulled a wooden block across each of the surfaces: rice, wax paper, aluminum foil, sand paper, and denim. The numbers of washers added to the pulley system needed to move the block 56 cm were measured and recorded. The data was displayed in a data table and bar graph. Sand paper needed the most washers to move the block. Sand paper displayed the most surface resistance, and, thus is the least slippery because it has the roughest surface.

Project Number: JPS030 **Grade**: 6

Title: Technology = Golf Ball Performance

Abstract: The purpose of this experiment was to determine if changes in the design of golf balls have increased the distance they will travel. The procedure used was to first obtain a sample of balls produced from the eary days of golf. the oldest ball tested was a Feathery, which was used in the earliest days of golf (1450 - 1880). Other golf balls tested included the Line Cut Gutty, Gutty Bramble, Square Dimple, Early Round Dimple, **Title**ist ProV1 and Top Flite 2 Piece Ball. A marble block was placed on the floor directly below a 'drop point'. Each ball was ddropped on to the marble block a total of 10 times. The height of the ball's bounce was recorded in centimeters. The test results showed an average bounce height of: Feathery 1450-1880's 51.6, Line Cut Gutty 1846-1900 191.4,
Gutty Bramble 1846-1900 189, Square Dimple 1898-1970's 183.3, Early Round Dimple 1898-1970's 197, **Title**ist Pro V1 1970- Current 280, Top Flite - 2 Piece 1970- Current 282. After doing this experiment, I think that technology did affect how far a golf ball will travel. Newer balls also performed in a more consistent manner.

Project Number: JPS031 **Grade**: 6

Title: Electrolysis in Action

Abstract: Batteries have been around for some time now, usually containing the metals zinc and carbon. Even though batteries have been around for years, few people think of the variety of metals that may be used instead. This is why I choose my experiment.
I placed two dissimilar metal rods in a lemon and measure the amount of electrical current produced. I then switched the type of metals in the lemon until I have paired all the metals with one another. I found that brass and magnesium produced the greatest electrical current at 1.90 volts.

Project Number: JPS032 **Grade**: 6

Title: Nails Vs. Rust

Abstract: The purpose of this experiment was to determine which liquid (regular tap water, salt water, sprite, and vinegar) would cause a nail to form rust first and which would cause the most rust on a nail by the end of the experiment.

Project Number: JPS033 **Grade**: 6

Title: Compare The Reactive Effects Of Different Substances

Abstract: The purpose of the experiment was to find different combinations of substances to get a volcanic reaction. I made the volcano using a cardboard base with a plastic tube in the middle and wrapped wet plaster strips over the strings and cardboard. Once dry, I painted the volcano brown and red. Then, I gathered the following items: baking soda, dish soap, water, red food coloring, lemon juice, vinegar, hydrogen peroxide, rapid rise yeast, measuring cups, spoon and measuring tape. I mixed one tablespoon of baking soda, one tablespoon of liquid dish soap, 1/4 cup water and three drops of red food
coloring. Then I poured this mixture into the "mouth" of the volcano. I added lemon juice and watched and recorded the outcome. I cleaned the area for the next substance mixture of vinegar, hydrogen peroxide, and a packet of rapid rise yeast. The lemon juice combination rose after a two second delay; then spilled over onto the sides of the volcano to its base; the hydrogen peroxide combination had no reaction; the vinegar combination immediately rose, overflowed, and spilled out approximately 5 inches past the base of the volcano; the rapid rise baking yeast did not have a reaction. The conclusion of my
experiment showed the vinegar and lemon juice substances resulted in a volcanic chemical eruption.

Project Number: JPS034 **Grade**: 6

Title: How Does Your Water Grow?

Abstract: The purpose of my project was to see if microwave water and purified water would affect growth of the plant. To conduct this experiment I had to get five plants: two with purified water, two with microwave water, and one with tap water for control. I measured the growth of the plants after a month’s time. The results were the purified watered plant and the microwave watered plant were the same height on trial 1, but on trial 2 there was a significant difference in height, and the microwave plant was unhealthy. The results indicate that my hypothesis should be accepted. I started to notice that the microwave water stunted the plants growth.

Project Number: JPS035 **Grade**: 6

Title: Which soil is more permeable?

Abstract: The investigator wanted to determine whether soil, sand or clay was the most permeable. She used inverted soda bottles and tin cans with a hole cut in the top to hold the different soil types. She placed the bottles and cans over a beaker, added consistent amounts of water over a four day period and recorded how much water drained through. She concluded that the soil was the most permeable, the sand was the second most permeable and the clay was the least permeable out of the soil types.

Project Number: JPS036 **Grade**: 6

Title: Which Fruit or Vegetable Can Generate The Most Electricity

Abstract: The purpose of my experiment is to see which fruit/vegetable can produce the most electricity. The procedure is to insert two metals into a fruit or vegetable and then measure it with a voltmeter. Then, you take the formula (10/250)*y (where y is the number on the voltmeter) to determine how many volts the fruit or vegetable has. My hypothesis was correct. The lemon did measure the most with 0.9 volts.

Project Number: JPS037 **Grade**: 6

Title: Does Temperature Matter?

Abstract: Does temperature matter when it comes to what material allows for the best drainage in a French drain? I hypothesized that gravel under normal temperatures will provide the best drainage. Three kinds of material; sand, gravel, and straw were used under three temperature conditions to determine what material provided the best drainage support. 750 milliliters of water was poured, timed and collected under room temperatures, freezing and hot conditions. Water drained the slowest through the sand under all three temperature conditions. The straw provided the second best drainage material whereas; the gravel provided the poorest support. It was concluded temperature does affect how fast water drains through different materials at different temperatures.

Project Number: JPS038 **Grade**: 6

Title: Spacing Out

Abstract: In my experiment, I wanted to find out if solids or liquids contained more space between their particles. I hypothesized that liquids had more space between particles than solids. For solid, I took three equal amounts of marbles, sand, and water. I poured the sand and then he water to fill in the gaps between the marbles. For liquids, I took equal amounts of water and alcohol and combined them. I took starting and ending volume readings and compared them. My conclusion is that there was more space between solids than liquids. I proved my hypothesis is false.

Project Number: JPS039 **Grade**: 6

Title: Lemon vs Potato

Abstract: The purpose of my experiment was to determine which food (a lemon or a potato) would make a better energy source for a Volta battery. For the procedure, I collected data from a voltmeter that was attached to similar sized potatoes and lemons. The data I collected covered a total of 47 minutes of observations of 2 lemons and 2 potatoes. I recorded my data every 20 seconds. Both of the potatoes had higher voltage than the lemons, but the lemons' voltage lasted much longer than the potatoes.

Project Number: JPS040 **Grade**: 6

Title: The Price On Ice

Abstract: The purpose of this experiment is to figure out how the shape of an ice cube affects how quickly it melts. I obtained 3 different shaped containers and filled each with 1/3 cup of water. Once frozen, I put the ice shapes in measuring glasses and measured the amount of liquid left over with measuring spoons after 20 minute time intervals. After 140 minutes, the oval completely melted, the circle had ¼ cup of liquid, and the cube had a little less than ¼ cup of excess water. My conclusion is the flatter the object, the quicker it melts because the molecules are spread out.

Project Number: JPS041 **Grade**: 6

Title: Objects In Motion

Abstract: The purpose is to show that objects with more mass carry more energy than those objects with less mass. Materials: different size balls with different masses. I measured the distance each ball rolled after it collided with another ball.

Project Number: JPS042 **Grade**: 6

Title: Aerodynamics

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

Project Number: JPS043 **Grade**: 6

Title: Cell Phone Radiation and Proximity

Abstract: Purpose: Determine how changing a cell-phone’s distance from its user affects the magnitude of radiofrequency (RF) energy received. Procedure: Turn off the cell-phone’s ringer and vibrations. Place calls to the phone when the sensor is 0cm away. Record the meter’s peak reading in W/cm2 while the phone receives the call. Repeat the process when the sensor is moved distances of 0 to 20cm away. The amount of RF energy decreased as the phone’s distance from the meter increased. The largest decrease in energy was at 1cm away. The optimal distance to carry a cell-phone is 1cm away from the user.

Project Number: JPS044 **Grade**: 6

Title: Probabilities of Winning Hands in Texas Hold'em

Abstract: The purpose of this project is to determine the probability of winning hands in Texas Hold ‘em. This was accomplished by playing Texas Hold ‘em with 4 players for 100 games and noting the winning hand for each game. The hand that won the most was two pair. My interpretation was that a pair would win most often because it is easy to get, but it surprised me when I made the final conclusion that two pair had the most.

Project Number: JPS045 **Grade**: 6

Title: Game On

Abstract: The purpose of my experiment was to find out which angle, when kicking a soccer ball, would be the most accurate. To conduct this experiment I had to have my subject kick from a fifty, forty and thirty degree angle. To measure the accuracy I put cones in the goal and

rated it middle, of the post and into the net, or miss. The results of this experiment were that the fifty degree angle had the best accuracy. My hypothesis did not agree with my results. My hypothesis stated that the thirty degree angle would be the most accurate.

Project Number: JPS046 **Grade**: 6

Title: Rustopia

Abstract: The purpose of this experiment is to test if water temperature affects the amount of rust on a needle, nail, or paper clip. To conduct this experiment, I put the objects in beakers of water at different temperatures. To measure the amount of rust, I weighed the objects on a scale. The results were that the warmer temperature made the objects oxidize faster. My results agreed with my hypothesis which stated that if different temperatures of water are used to produce rust on a needle, nail, or paper clip, then the warmer temperature will oxidize these items faster.

Project Number: JPS047 **Grade**: 6

Title: It Isn't Your Grandma's T-Shirt Anymore

Abstract: The purpose of my project is to see if Dri Fit is really absorbent or is plain old cotton still the best. I have chosen this project because I am active in athletics and want to be properly dressed. My first is to cut a sample square of the selected materials (cotton, cotton polyester blend, polyester, and dri fit). Next, I will place each sample in an 8” round wooden loom. Then, I will weigh the sample and the loom. I will record the results. Next, I will spray each textile with a tablespoon of water. I will then place each of the textiles and loom on a stretched cloths line. Next, I will place an allotting fan five feet from the cloths and textiles. I will then wait 30 minutes and reweigh the textile. Last I will record the data and repeat the test 9 times again.

Project Number: JPS048 **Grade**: 6

Title: How Sympathetic Vibrations Effect Guitars

Abstract: If you’re a musician and you play the guitar, you may have realized that plucking one string on a guitar can cause other strings to vibrate, that is called “sympathetic vibration” my project determines that notes create more sympathetic vibrations. For frets 0 (open E) to fret 12 on the high E string, I had to pluck them, mute them, and determine what other strings were sympathetically vibrating. As it turns out, the A string produced the most vibrations, and the G string produced the least amount of vibrations.

Project Number: JPS049 **Grade**: 6

Title: Best Crystal Material

Abstract: I wanted to do an experiment to find out the different materials that can be used to form crystals. I used salt, baking soda, and sugar. I placed the same amount of salt, baking soda, and sugar into glass jars. To create the crystals, I added water to each of them and made observations over several days. I found that the salt formed the best crystals. Baking soda formed a crusty layer, but no crystals. Sugar created a solid layer with a gel-like substance below.

Project Number: JPS050 **Grade**: 6

Title: Go The Distance

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

Project Number: JPS051 **Grade**: 6

Title: The Effect of Font on School Ink Cost

Abstract: I investigated which font types use ink the most efficiently, and estimated the amount of money my school can save by choosing the right font. I collected handouts from a random sampling of teachers for a week. I then determined the frequency of character usage in these documents. I created a document modeling an average school handout for character frequency. I made content replicas of this document with different fonts and used ApFill™ and massing to estimate the ink usage. I concluded that switching to Garamond, the best font, will save my school district about $21,000 per year.

Project Number: JPS052 **Grade**: 6

Title: Do Different Amounts of Baking Soda Affect How a Cake Rises?

Abstract: Baking soda is commonly used in baked goods. This work intended to learn how different amounts of baking soda affect a finished baked product, in this experiment, a cake. Three cakes were baked using the same recipe, differing only in the amounts of baking soda. It was determined that the more baking soda used, the higher the cake rises.

Project Number: JPS053 **Grade**: 6

Title: How Things Will React Using Vinegar?

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

Project Number: JPS054 **Grade**: 6

Title: Baseballs vs. Temperature

Abstract: The purpose of my experiment is to find the speed and accuracy of a baseball at different temperatures. To conduct my experiment I will need an oven, cooler, freezer, backstop, speed gun, heating pad, 16 baseballs, thermometer, and a pitching machine. The result of the experiment was the hot baseball had the highest average speed at 44.6 mph. The hot baseball also had the highest average accuracy at 8.8 out of 10. These results indicate that my hypothesis was incorrect which states the baseball at room temperature will have more speed and accuracy than the frozen and hot baseballs.

Project Number: JPS055 **Grade**: 6

Title: Orange vs. Potato

Abstract: The purpose of this experiment was to measure and compare the amount of volts of an orange with a potato. To conduct this experiment I will put a steel and copper rod into the orange and potato then press the metal ends of the voltmeter against the rods. The experimental results were measured in volts by using a voltmeter. The results of the experiment were that the orange produced more volts than the potato. The results indicate that the hypothesis should be wrong because I predicted that the potato would produce more volts than an orange.

Project Number: JPS056 **Grade**: 6

Title: I Got Hit By An Apple

Abstract: The purpose of my project is to investigate Newton's Second Law of motion by designing a real world experiment using modern day objects. For my project, I wanted to experiment with these laws by putting objects in motion consistently and observing the outcomes. I built a contraption that would let me observe Newton's Laws in action. All three laws were demonstrated and observed very effectively. Also' I identified the source of some external forces acting on my vehicles. My testing revealed that the magnetic sled and weighted car traveled a great deal further than the friction sled.

Project Number: JPS057 **Grade**: 6

Title: Conserving Heat

Abstract: The purpose of my experiment is to find out what conserves heat the best. To conduct this experiment I heated water in a mug to about 100 Celsius and placed each material individually over the water for 10 minutes. The experimental results were measured by the water temperature after I removed the materials. My hypothesis indicated that the aluminum foil would conserve the most heat. The results proved my hypothesis to be correct. I predicted this outcome and agree with my results.

Project Number: JPS058 **Grade**: 6

Title: Which Metals Corrode the Fastest?

Abstract: I started this project because I wanted to see which metals corroded the fastest. I used zinc, copper, steel, silver, and aluminum wire as my metals. I then used 10 pencils and 10 identical clear cups. I tied one end of wire to the pencil. The other end was in the water. Each kind of wire was in both distilled water and salt water. Then, I observed it for ten days. Steel in distilled water corroded the most compared to the other metals. The metals that did not rust were silver, copper, and aluminum. Next time I'll use different variables such as soda or lemonade to test which liquid causes the metals to corrode fastest.

Project Number: JPS059 **Grade**: 6

Title: Spiraling Into The End Zone

Abstract: To prove a spiraling football goes farther and is more accurate than a non-spiraling football. I will build and use a pneumatic football launcher to keep the throws consistent. Changing the wings on the vortex football will cause the football not to fly in a spiral. I believe the results will show that a unmodified ball which fly in a spiral will travel farther and more accurately. After each launch, measurements will be taken to determine the distance and accuracy. The results of the unmodified and modified balls will be compared to determine if the results will support my hypothesis.

Project Number: JPS060 **Grade**: 6

Title: Juice From Juice

Abstract: I am going to construct a battery using lemons, copper, pennies, galvanized nails, and wires with connector clips. Start with a single lemon, inserting a penny and a galvanized nail into the fruit an inch apart. I will measure the electric output in D.C. volts using a voltmeter. Add a lemon batter, one by one, in with the previous lemon’s negative terminal (nail), measuring the voltage at each step, till four lemons have been connected. Is there a difference in the voltage reading between the two different types of battery during any of the same stages of this experiment?

Project Number: JPS061 **Grade**: 6

Title: Countering Corrosion

Abstract: The purpose of my experiment is to find the most effective way to prevent rust. I exposed nails covered in different coatings to water and oxygen. Then I measured how much rust formed on the nails overtime. My tests showed that the stainless steel and painted nails didn't rust at all; the galvanized, greased, and magnesium nails had some rust; and the iron nails rusted the most and the fastest. Therefore, in a wet environment, the nails you would use are stainless or painted.

Project Number: JPS062 **Grade**: 6

Title: Are the TV commercials louder than the shows you watch?

Abstract: The investigator wanted to determine whether or not commercials were louder than the shows he watches. He used a Extech Decibel Meter to record the sound during shows on seven different channels that he watches. He also recorded the sound during the commercials and compared his results. Television commercials were louder on five of seven channels that he tested.

Project Number: JPS063 **Grade**: 6

Title: Sticky Situation

Abstract: I chose to do this project because I wanted to learn how to do a trick in the sport hockey. The trick is called the Michigan, and it is when you would get the puck to go onto your stick without your hands. Hockey wax allows you to do this trick much easier. So I’m testing

different waxes (Brands 1, 2, 3, 4, and 5) to determine which wax can hold a puck on a wooden board the longest. I hypothesized that Brand 2 would be the best and my hypothesis was supported.

Project Number: JPS064 **Grade**: 6

Title: Buoyancy and Density

Abstract: The **Title** of my experiment is “Buoyancy and Density”. The purpose is to see if different condiment packets have different buoyancies and densities. I researched that condiment packets have air bubbles; which shrink when squeezed. After releasing pressure, the packet floats to the top having dropped the excess density. I tested this by placing ketchup and mustard packets into 1 liter bottles. I observed each at different temperatures; 42F, 58F, and 64F. I squeezed the bottles to see the results. People will learn about the buoyancy, density, floating and sinking of condiment packets from this experiment.

Project Number: JPS065 **Grade**: 6

Title: Star Light Star Bright

Abstract: My experiment was to see if light pollution affects how many stars are visible in the sky. My hypothesis was that Mt. Washington would have the least amount of stars, because it had the most light pollution. For my experiment I chose five different locations. At these locations I counted stars ten times in a different direction each time through a paper roll tube. Locations included Mt. Washington, country road, shopping center, parking lot, and my back yard. My results showed that the country road had the most stars and the shopping center had the least amount of stars.

Project Number: JPS066 **Grade**: 6

Title: Shrinking Cubes

Abstract: The purpose was to determine if ice melted at different rates in different liquids: water, Coke, Sprite, and Gatorade. An ice cube was placed into a glass with each of the different liquids. The times for the ice cubes to melt were measured and recorded. The data was displayed in a data table and bar graph. Ice cubes in water melted the fastest.

Project Number: JPS067 **Grade**: 6

Title: Crash! Speed, mass, vehicle

Abstract: Have you ever wondered if the volume of something could make a ball roll farther? Well I wanted to know! I started by getting three common, everyday balls, a Softball, a Wiffle ball, and a round nerf ball. I took two wooden boards, two door hinges, eight long nails, and a hammer. Then I made the "ramp" and rolled the balls down it and recorded them. I found out that the softball went the farthest, just like my Hypothesis, I was right. I was right. I had a very fun time doing this project, and definitely would do this again!

Project Number: JPS068 **Grade**: 6

Title: Weather Predictions

Abstract: Weather is very important to people everywhere. What I had to do was check the temperature and precipitation of three different weather stations for about two weeks. I checked all three weather stations websites every night for updates which was recorded. I determined that temperature would be accurate seven of the ten days and precipitation five of the ten days. I was somewhat correct on my hypothesis. I was correct for temperature on two stations, and one for precipitation. Weather is very important to people everywhere. What I had to do was check the temperature and precipitation of three different weather stations for about two weeks. I checked all three weather stations websites every night for updates which was recorded. I determined that temperature would be accurate seven of the ten days and precipitation five of the ten days. I was somewhat correct on my hypothesis. I was correct for temperature on two stations, and one for precipitation.

Project Number: JPS069 **Grade**: 6

Title: Which Battery Supports the Most Light

Abstract: The purpose of my experiment was to see if I could adapt the decorative Christmas lights to run with battery power. I used the wire cutters to cut the rubber off of the wire and put the exposed wire on the two poles of every battery. I cut one light off and started again. Every battery but the transistor battery supported three light bulbs. The transistor battery supported eighteen lights.

Project Number: JPS070 **Grade**: 6

Title: The Coffee Cup Dilemma

Abstract: The purpose was to determine if Styrofoam, ceramic, or paper cups kept coffee warmer longer. Coffee was poured into each cup, and the temperatures of the coffee in each cup were measured and recorded at 2 minute intervals for 20 minutes. The data was displayed in a data table and line graph. The coffee was the warmest in the Styrofoam cups over a 20 minute period because Styrofoam is an insulator.

Project Number: JPS071 **Grade**: 6

Title: Frequent Flyer

Abstract: Near the beginning of the school year my friend and I were having a little argument over which type of paper airplane flew the best. To see who is right, I tested three different types of paper airplanes: a long pointed one, a broad yet short plane, and a third different model. All were made with one sheet of copy paper. I pushed them off of an elevated surface and recorded which one would travel the fastest, and the farthest. I hypothesized that the pointed one would go the fastest, and the broad-winged one would go the farthest. My hypothesis was partially supported. The broad-winged one went the farthest and the medium sized one went the fastest.

Project Number: JPS072 **Grade**: 6

Title: Natural or chemical-Which Stain Remover is Better?

Abstract: The experiment compared the effectiveness of natural stain removers versus chemical removers. The hypothesis was, “chemical removers work better.” Cotton cloth swatches were stained with grape juice. Different removers were used to treat each stain. A graduated color scale, numbered 1 to 5, was used to score the results. The data shows that OxiClean removed the stain the best. Overall, cleaning agents with a basic pH, performed best. In conclusion, the data confirmed the hypothesis.

Project Number: JPS073 **Grade**: 6

Title: Slower Than Molasses

Abstract: The purpose of my project is to determine the viscosity of different liquids. I did this by creating an hourglass using plastic bottles and timing how long it takes for the bottom to fill to a specific point. I tested water, molasses, corn syrup, maple syrup, and honey. I tested each liquid three times. I created a data table, and graphed the results. I hypothesized that molasses would be the slowest, and my hypothesis was incorrect.

Project Number: JPS074 **Grade**: 6

Title: What Goes Up Must Come Down.

Abstract: My experiment is about how high different sports balls can bounce when dropped from a window that is 12 ft. off the ground. Balls were dropped one at a time from the window. I measured the distance from the ground to the bottom of the ball at its highest point in the bounce. The balls were dropped three times to get an average height and make the measurement as exact as possible. I recorded the height of each bounce and graphed it from the highest to the lowest bounce. The golf ball bounced the highest.

Project Number: JPS075 **Grade**: 6

Title: Floating Raisins

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

Project Number: JLS001 **Grade**: 6

Title: Water Works

Abstract: Plants are used in many ways including clothing, paper, shelter, fuel, medicines, and food. Many people choose to grow their own food. Produce that comes from a farm must be picked early, usually before it is ripe, packaged and shipped to the grocery stores. So you are not always getting the freshest produce. By growing your own vegetables you will have produce that is fresh. Vegetables can be grown from seeds or from plants that have already been started at your local greenhouse for you to purchase. Plants need certain conditions to grow. These are water, proper temperature (warmth), and the proper location to get nutrients for growth. Water is important to the growth of a plant. Although plants receive some nutrients from the soil, water helps a plant by transporting important nutrients through the plant. Without the right amount of water, the plant can be malnourished and physically too weak to support its weight.
This science project showed how various types of water impact the growth of plants. First I needed to research how plants grow. Based on this information I tested my experiment by using seeds, potting soil, and four different types of water, but keeping all other conditions the same.

Project Number: JLS002 **Grade**: 6

Title: Which will wilt first?

Abstract: Fresh flowers are found in American homes year-round. The purpose of my experiment is to identify whether cut, fresh flowers can last longer, without chemical preservatives, by varying the bloom size or vase size. I will place a large flower and a small flower in two identical large vases and do the same with two identical small vases. The flowers will be taken from the same plant, placed in front of the same window, and given the same amount of water from a common source. I will repeat the experiment.

Project Number: JLS004 **Grade**: 6

Title: When Crickets Sing

Abstract: The purpose of my experiment was to see if light and dark would affect the ways crickets chirp. To do this, I set up a control group that was always in light for five days. I set up an experimental group that was kept in lighted conditions in half of the time and in dark conditions the other half of the time. My experiment proved that, yes, crickets' chirping behavior is affected by the light and dark. They chirp more at night when it's dark.

Project Number: JLS005 **Grade**: 6

Title: Can Plants Determine Water Quality?

Abstract: My project is whether aquatic plants can or can’t determine water quality. I wanted to do the project because I have noticed there is more and more pollution today and I wanted to know if the plants were affected by the pollution. I hypothesize that they would be negatively affected. I started by weighing elodea plants. I then filled two tanks with gravel and water. Then, I added sodium chloride to one of the tanks. I carefully planted three plants in each tank. I let them grow for two weeks and then studied each of the plants. I gathered data by finding the mass of the plants after a certain period of time.

Project Number: JLS007 **Grade**: 6

Title: Bean Supreme

Abstract: I have always wondered if different liquids would affect plant growth. I tested four organic fertilizers on bush bean seeds. Based on my research, well water, organic detergent rinse water manure tea, and the crushed eggshell with milk were used. Bush beans were used because they were the easiest to grow from seeds. Twenty five seeds were planted for each group. For twenty one days the plants were observed. My hypothesis was somewhat wrong because well water performed average. The detergent water did the best. If I would do this experiment again, I would like to test different plants.

Project Number: JLS008 **Grade**: 6

Title: Help! Secondhand Smoke is Killing My Plants!

Abstract: Does secondhand smoke really kill plants? Take 4 plants. Measure each. Place 2 plants in a nonsmoking environment and place 2 plants in a smoking environment. The smoking environment was created with cigarette smoke. Allow to be in the environments for 2 weeks. The plants in the non-smoking environment grew taller.

Project Number: JLS009 **Grade**: 6

Title: Photosymphony

Abstract: I am doing my project on how plants react to music because I have heard stories that people talk to plants and they usually grow better. The problem is that when we talk we exhale carbon dioxide which plants use to grow. So I decided to use music instead of talking to the plants. I played music to plants to see if they would grow better, die, grow unusual things on them, ext. The rock and classical music plants died, the neutral plant grew regularly, and the country music plant grew very tall, long, and healthy. I learned things through books, elders, and the computer. I used a CD player to play music to my plants. I played music to them for 5 weeks. I did not expect the results I got entirely, but some of my results matched up with my hypothesis.

Project Number: JLS010 **Grade**: 6

Title: Does Age Effect Memory

Abstract: Throughout this whole process I thought that my hypothesis was going to be correct but it wasn't right or wrong. I'm glad I chose "Does age effect memory?" because I had a lot of fun with this project and hope I did well on it. Because this is my first year in the science fair, I experienced more than I thought I would. Now that I've learned what this process was about I hope in the future I will do better and learn more about my projects each year.

Project Number: JLS011 **Grade**: 6

Title: Does caffeine affect your pulse?

Abstract: I chose my topic because I question, “Why do adults tell kids that caffeine is not good for you? Yet they drink coffee and eat chocolate all the time.” So, I thought I should find

out what caffeine would do to my pulse. First I will find 4 participants. With each participant I will have them consume each caffeinated product separately. Once they have consumed the product I will wait 5 minutes to take their pulse again for 30 minutes.

Project Number: JLS012 **Grade**: 6

Title: Texting and Reaction Times

Abstract: The purpose of my experiment was to see if texting affects your reaction time. Reaction times were tested on eight students from my school. They were divided into two groups of four. People whom text, and people who do not text. My results were that people who did text had better reaction times than those who did not. My results indicate that my hypothesis was correct, those who did text had better reaction times than others. Although there is no way of telling accurately because I did not incorporate that people naturally have different reaction times than others.

Project Number: JLS014 **Grade**: 6

Title: Different Soils vs. Wheat Growth

Abstract: The experiment's purpose is to see which soil, potting soil, outside soil, or sand would grow Lucy wheat better. To conduct this experiment I needed Lucy wheat seeds, the 3 different soils, and 9 clear plastic cups. The plants were divided into 3 different groups that got different amounts of sunlight. I measured the plants in centimeters. After 17 days my experiment ended. The results were, in all 3 groups the potting soil grew the best. In my hypothesis, I thought the outside soil would grow Lucy wheat better. Apparently, the potting soil grew Lucy wheat the best.

Project Number: JLS015 **Grade**: 6

Title: Gravity of Plants

Abstract: My experiment is about me seeing if plants grow differently if their gravity is changed will the roots still grow right. I think that the one facing up will grow its roots faster and stronger I think that the up one will grow more because the stem is facing upwards and the other part is facing down. I think that the ones facing right and left won't grow right because their roots will grow to the side and not down which will mess up the grow process. I think the one facing down won't grow right because the roots will grow facing upwards and they won't grow right and they will be messed up. My results were that the plant tip facing downwards grew the most and the seed stem facing left grew the second best and last the plant stems facing up and right didn't grow at all. My hypothesis was not supported because I said that the plant facing upwards would grow the most but the plant facing downwards grew the most instead and the one facing upwards didn't even grow one centimeter. The roots facing upwards grew 0cm and the roots facing downwards grew 10 1/8 cm so that is proof that the roots facing upwards grew more. Next time I would add dirt instead of not adding dirt to make it different. Do plants have a special type of gravitational control?

Project Number: JLS016 **Grade**: 6

Title: The Blooming Daisy

Abstract: The purpose of the experiment was to see which soil grows the flower the fastest, potting or outside soil. Growth rates of daisies were compared between pots using potting soil vs outside soil. The plants received the same amount of sunlight and water. Growth rates were compared on a weekly basis by measuring height in centimeters for seven weeks. The results were the height of the flower in the potting soil was greater than the flower in the outside soil each week. The results indicated that the hypothesis should be accepted. The potting soil flower grew the tallest and the fullest.

Project Number: JLS017 **Grade**: 6

Title: Video Games: Frustrating?

Abstract: The base of my project is to determine by taking a subject's pulse and observation, if people have a different approach on video games categorized by either fun or frustrating. My opinion is that video games would be more fun than frustrating. First, I will take my subject's pulse rate before playing the game. Next, I will observe them playing the game and write down their behaviors. Then, after playing the game until they have lost, I will take their pulse rate immediately afterwards. I will record all results in my data book.

Project Number: JLS018 **Grade**: 6

Title: Humic Acid

Abstract: The purpose of my experiment was to see if different combinations of Humic Acid would improve plant growth. I used four pots. I add one of the following to separate pots Fertilizer, Liquid Humic acid, a combination of the two, and plain soil. Then put it under one big plant light. After a whole month, my results were that liquid acid came first with 28cm inches. Then plain soil came next with about 28cm. Next, the combination with 23cm. Last, the fertilizer which was about 23cm. My future idea is next time I should try a different plant, like a squash and see if it grows the same way.

Project Number: JLS019 **Grade**: 6

Title: The Effect of Caffeine On Plants

Abstract: Almost everyone will consume caffeine throughout their lives. This work was intended to find if a plant could withstand caffeine and if how much? Two plants of the same type from the same store were watered with the same amount of liquid over a six day period. The only difference between the two plants was that one was watered with plain tap water (constant). The other was watered with caffeinated liquids (variable). The variable was first watered with white tea then root beer. After the experiment the variable was wilted and dying while the constant was green and healthy.

Project Number: JLS020 **Grade**: 6

Title: Teeth

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

Project Number: JLS021 **Grade**: 6

Title: Ewww Mold

Abstract: The purpose of my project was to find out which bread molds the fastest between fresh bread or store bought white bread. This experiment could help other people by telling them which bread is better to buy. I got the two types of bread and kept them in plastic wrap on the counter. I observed the bread daily to see which one started to mold first. If I were to do this project again, I would get different kinds of bread and put them in different environments.

Project Number: JLS022 **Grade**: 6

Title: What Affects the Browning of Fruit?

Abstract: In my project I wanted to know why some fruits browned more quickly than others. The fruits I tested were apples, bananas, and pears. The preservatives I used were lemon juice, lemon water, sugar water, and salt water. My hypothesis is that something with citric acid will preserve fruit the best, because it is a natural acid that works well as a preservative. My independent variable is the liquid preservatives and my dependent variable is the fruit.

Project Number: JLS023 **Grade**: 6

Title: Polluted Water vs. Tap Water

Abstract: This experiment was to find out how polluted water affects the plant growth of a radish seed. Growth rates were compared among fifteen radish seeds. Each were atered with polluted and tap water. Each plant received 10mL of water in trials. I evaluated the growth of the plants after five days. The results concluded the plant watered with tap water grew more than the plant watered with polluted water. Trial three was the biggest difference. Trial two was the least. he hypothesis should be accepted. The plant watered with tap water grew more than the plant watered with polluted water.

Project Number: JLS024 **Grade**: 6

Title: Which Baby Food Molds The Most?

Abstract: My project is about which baby food would mold the most. I decided to do this since a few of my cousins eat baby food and if their parents left food out would it be moldy. Almost everyone eats baby food so this would be helpful. I think that the organic food would mold the most do to the lack of preservatives and sprays. Though this would have mold it would probably not be toxic. I believe that this would be helpful and can teach people not to leave baby food out on the counter.

Project Number: JLS025 **Grade**: 6

Title: Effect Of Music On Blood Pressure and Heart Rate

Abstract: The purpose of this experiment is to find out whether music has an effect on the blood pressure and the heart rate of a human. The procedure will be as follows: Seat the subject in a quiet room. Blindfold the person and record their initial blood pressure and heart rate. Without the subject's knowledge, play light, classical music. After fifteen minutes, check

the person's blood pressure and heart rate again. Then switch the type of music to loud, metallic rock and wait another fifteen minutes. After the fifteen minutes
are over, record the blood pressure and heart rate again. Finally, switch the music back to the light, classical for fifteen more minutes, and record end blood pressure and heart rate. The data should show a normal blood pressure and heart rate at the beginning of the session, a fairly similar measure after the first fifteen minutes of music, a drastic increase in the measurement after the rock music, and then a lowered measurement at the very end.

Project Number: JLS026 **Grade**: 6

Title: Extracting Fruit DNA

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

Project Number: JLS027 **Grade**: 6

Title: What Color Attracts Moths?

Abstract: To find out which color attracts the most moths. Ordering moths online. Getting four see through dividers and a flashlight. Shining the flashlight over the colored divider for two hours. I will count all the moths.

Project Number: JLS028 **Grade**: 6

Title: Does color affect plant growth?

Abstract: The purpose of my experiment is to find out if pot color affects plant growth. I am conducting this experiment because I had grown tomato plants over the summer and noticed that the plants that had the most tomatoes were in red pots. I planted bean seeds in different colored pots and measured their growth. I am still collecting data. My hypothesis is that bean plants will grow best in red pots. If my hypothesis is correct, my results may be useful to gardeners because it might convince them to plant in red pots.

Project Number: JLS029 **Grade**: 6

Title: Diverse Liquids vs Plant Growth

Abstract: The purpose of this experiment is to see what affect different liquids have on a philodendron plant. Growth rates and leaf health were compared among five plants, watered twice a week with variable liquids (hot sauce, Pepsi, orange juice and milk), and one control with tap water. The experimental results were measured every week for three weeks, by growth (cm) and counting yellow and dead leaves. The results of the experiment were that variable liquids did worse than the control. The results indicate that the hypothesis should be accepted. Philodendron plants grow best and stay healthiest with tap water.

Project Number: JLS031 **Grade**: 6

Title: Dogs Sense of Smell

Abstract: The purpose of this experiment was to see which dog the Corgi or the Labrador could smell the bacon treat or the bone and see if the dog's sense of smell had to do

anything with finding the treats. To see if the treat affected the dog's sense I hid the smell of the treats, so I put the two bacon treats into two plastic bowls and two glass cups and did the same for the bone. The results showed that the Labrador did find the bone faster than the Corgi and the Corgi found the bacon treat quicker than the Labrador, but at sometimes the Labrador found the bacon treat first. And other times the Corgi found the bone first. The results indicated that the hypothesis is right. The Labrador did find the bone faster than the Corgi and the Corgi found the bacon treat quicker.

Project Number: JLS032 **Grade**: 6

Title: Color vs. Salt

Abstract: The purpose of this experiment is to see if a flower absorbs the same amount of salt water as colored water. Flowers were placed in cups containing salt, blue food coloring, and red food coloring. To measure the absorption of the water, I placed a mark on the cups. I did two trials in two days. The results indicated that the hypothesis is accepted. The salt water did not absorb as much as the colored water because the salt in the water had affected the health of the plant, because the plant started to wilt.

Project Number: JLS033 **Grade**: 6

Title: How does recycled laundry water effect plant root growth?

Abstract: The purpose of my experiment was to find out if recycled laundry water could be used to water house plants. I created recycled laundry water by washing clean towels in a clean washing machine with two different types of laundry detergents. I used recycled laundry water and tap water to try and root cuttings from a philodendron plant. I had three different cuttings for each water type. I watched the cuttings for four weeks to see which type water helped the cuttings to root best. I am still observing my cuttings; my results will be available on my project.

Project Number: JLS034 **Grade**: 6

Title: Mouse vs. Hamster

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

Project Number: JLS035 **Grade**: 6

Title: Crystallization

Abstract: My project is based on crystallization. In my project I experimented with sugar and two different types of salts; Epsom Salt and table salt. There were two parts to my project. The first part was that I kept the sugar and salts in sunlight, and the second part was that the sugar and salts were without sunlight. I was going to see if it affected the growth of the crystals. I examined the sugar and salts for three weeks total in each of the two variables, with light and without light. I rated the crystallization by which sugar or salt produced the most and which one produced the least. The results in the exposure to sunlight are that the table salt produced the most crystals in the three weeks, and the sugar produced the least crystals. The results for the no sunlight project is that the table salt still created the most crystals, but created less crystals than the exposure to sunlight project. The Epsom Salt created the least crystals in the no sunlight project.

Project Number: JLS036 **Grade**: 6

Title: Bread's Getting Mold!

Abstract: The purpose of my project was to examine three different kinds of preservative free breads and investigate which one molds the slowest. I hypothesized that the bread in bag B would mold the slowest because it has the least ingredients. I used a transparent grid divided into 100 small sections to determine the percent of mold on each piece of bread. I gathered, analyzed, and graphed data. In conclusion my hypothesis was proven correct: the bread in bag B grew the least mold.

Project Number: JLS037 **Grade**: 6

Title: Compostable or Not

Abstract: I wanted to test if a SunChip bag would decompose in fourteen weeks. I compared a SunChip bag, an apple quarter, and a banana peel for decomposition speed. All together I think that my project was a success. The fact that the SunChip bag didn't decompose was a little disappointing, but there was definitely a bright side to it. Once it was apparent that my apple quarter and the banana peel were decomposing and the SunChip bag wasn't, I e-mailed the company, Frito-Lay. I explained to them how I proceeded with my project and the results. They e-mailed me back, and explained some of the variable that could have helped me with the decomposition of my materials.

Project Number: JLS038 **Grade**: 6

Title: pH Effects on Seed Germination

Abstract: The hypothesis for this experiment is: If I raise or lower the pH level of different liquids , seed germination rate will be affected when compared to the seed germination rate using a neutral pH level of water. Bean seeds are one of the most resilient and easy to grow. Choosing a variety of liquids with different pH levels (water, diet Cherry Pepsi, soapy water, and milk) and using bean seeds, plastic bags, and blue napkins I conducted an experiment to see which of the chosen liquids would enable the bean seed to germinate and which one(s) would not. I observed the seeds daily for a period of 14 days. Documenting any changes I observed and then once the seeds started to germinate, I measured the root length. I tracked the growth rate for each seed and captured pictures of the changes. All of the bean seeds began to swell as they absorbed the liquid they were in at the same rate. Day 7 three of the four seeds had germinated, day 9 all of the seeds had germinated, the bean seed in diet Cherry Pepsi being the last, and by day 12 the bean seed in water surpassed the other seeds and was able to maintain its growth. Although all of the bean seeds germinated some did so at a slower rate and eventually stopped growing all together. My experiment was consistent with data I found in my research. In my research I found that a pH level between 6 and 7 is most conducive to allow bean seeds to germinate. All bean seeds germinated within 6-18 days and water having a neutral pH provided the best medium for the bean seed to thrive as the nutrients derived from the water were consistent and not too extreme to either acid or base allowing the chemical changes an providing the proper environment for growth.

Project Number: JLS039 **Grade**: 6

Title: Seed Germination

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

Project Number: JLS040 **Grade**: 6

Title: Which Liquid Makes Plants Grow Best?

Abstract: The purpose of this project is to see which liquid makes plants grow the best. Ten kidney bean seeds were planted in organic, unfertilized soil. Using water, coffee, tea, plant food and soda, they were "watered" every few days. Heights of the plants were measured periodically. Data shows a plant fed by water grew the best. Plants fed by coffee, tea and plant food also grew well. The plants fed by soda did not germinate. One plant fed by water took one month to germinate. In conclusion, a plant fed by water grew the best.

Project Number: JLS041 **Grade**: 6

Title: Water vs. Miracle Gro

Abstract: This experiment intended to discover ir fertilizer or water helps African Violets grow. The plants were placed on the same window sill and feed Plant A water then feed Plant B Miracle-Gro. Results were Plant A grew 1/2 inch taller than Plant B, in the seven week time period that they grew in. The conclusion is that Miracle-Gro, really did not make one bit of difference in the growth of Plant B.

Project Number: JLS042 **Grade**: 6

Title: How the Green House Effect Works

Abstract: How does the amount of Carbon Dioxide in the air affect how much the air heats up when exposed to sunlight? To find this answer, I had to fill 5 bottles with different amounts of carbon dioxide gas and measure the change in temperature. I used three bottles to fill a certain amount of baking soda and white vinegar while the other 2 bottles were empty. I placed a thermometer in each bottle, screwed the cap on tightly and brought them outside. I waited twenty minutes and then recorded the data. I then took the bottles outside and it them in the sunlight for twenty more minutes. When they were done I recorded the temperatures and compared them. I compared bottles 2,3, and 5 to each other while bottles 4 and 1 had no comparison.

Project Number: JLS043 **Grade**: 6

Title: Does Sugar Increase the Rate of Mold Growth?

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

Project Number: JLS044 **Grade**: 6

Title: Curdling Cows

Abstract: The purpose of my project was to see which milk would create the most curds. The first thing I did in my procedure was put 1 and ¼ cups of each type of milk into a pot. Then I added 1 tsp. of lemon juice to it. Next, I waited until I saw curdles and strained the milk. Finally, I counted and recorded the number of curdles. I hope to find that the 2% milk with the most fat, made the most curdles.

Project Number: JCS001 **Grade**: 6

Title: Got Strength?

Abstract: In my project Got Strength?, I wanted to test what paper, recycled or new, affected the strength it had. My hypothesis was that the new manufactured paper would be stronger, because of a wax-plastic coat it has that recycled paper does not. When doing my project, I had to find what paper was stronger new or recycled by taping a small strip of each paper to a table. Then by taping the strips of each kind of paper to two different buckets, one for recycled paper and one for new paper and then by adding pennies to the bucket until the paper strips broke. Finally while doing my procedure I found that my hypothesis was correct, the new paper was stronger than the recycled paper, the new paper held more weight.

Project Number: JCS002 **Grade**: 6

Title: The Three Little Baggies

Abstract: I tested three different types of bags in my experiment. I wanted to see which baggie would keep the apple slices fresh the longest. I determined “freshness” by weighing the slices after storage time. More mass indicated more freshness. I tested cellophane bags, Ziploc bags, and brown paper bags. I kept the apple slices in the different bags. Then at the end of the experiment, I weighed the apple slices to see how much mass the apple slices lost. I was able to determine the percent of weight lost and I graphed and analyzed my results.

Project Number: JCS003 **Grade**: 6

Title: Measuring Pellet Performance

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

Project Number: JCS004 **Grade**: 6

Title: Bottle Versus Bottled

Abstract: I got name brand bottles of water and aqua check test strips and set up everything on my kitchen table. Then I tested the water for each of the following: pH, chlorine, alkaline and stabilizer. Next I randomized my water so my taste testers did not see the brands and tap that they were testing. After documenting my results, I got my data and, made my graphs. Then I compared all of my results and found out which water tasted the best of all my name brands and tap .I thought of this project by my sister doing something similar.

Project Number: JCS005 **Grade**: 6

Title: What Does Your Nose Know?

Abstract: The purpose of my project is to determine whether a person can or cannot detect different foods without the ability to smell or see. The procedure started by placing four different foods with different flavors on the experimental table. Then ten subjects completed the experiment, and answered questions, which was recorded in my data book. The results did not match the hypothesis: All ten of my subjects guessed at least two foods correctly. In conclusion, the lack of smell and sight did not have a major affect on the subjects’ ability to taste.

Project Number: JCS006 **Grade**: 6

Title: Which paper towel is most absorbent?

Abstract: The investigator wanted to determine which paper towel was most absorbent. She tested Brawny, Viva and Scott paper towels. She soaked each paper towel in 100 ml of water, and measured how much water remained in the measuring cup after. She determined, after repeated experiments, that the Viva paper towels absorbed the most water.

Project Number: JCS007 **Grade**: 6

Title: Which battery lasts the longest?

Abstract: Try three different types of batteries (AAA) in a small flash light. Only turn it on in the day time and take it everywhere. Have a chart ready. Write when you turn it on every day. When it dies write the date and time. Do that for every battery type and then calculate how long it lasted. Write down the data on a piece of paper and find out which battery lasted the longest. Then put them in order from longest to shortest.

Project Number: JCS008 **Grade**: 6

Title: Which lunch box keeps your lunch the coolest?

Abstract: The purpose of the investigator's research was to determine which lunch box keeps a lunch the coldest. He tested three different lunch containers for the same amount of time with the same standard lunch items. The tests were repeated three times for each lunch container to get an average temperature. Overall, the insulated lunch box kept the lunch coldest the longest.

Project Number: JCS009 **Grade**: 6

Title: White and Bright

Abstract: The purpose of the experiment is to see which toothpaste cleans stains from teeth the best. My hypothesis was that Colgate Total would clean the teeth the best. I got nine canine teeth and soaked each tooth in 2 oz. of three staining materials; red wine, black coffee and red grape juice. Each tooth was individually cleaned with a new toothbrush and a pea-size amount of each product from most to least expensive. (Colgate, Aquafresh and Aim) The teeth were then charted on the dental shade chart, compared and averaged out numerically. My hypothesis was correct and the Colgate toothpaste cleaned the teeth the best. This was proven by a final score of 2.3 in whiteness for Colgate, coming in a close second was Aim at 2.5 and Aquafresh was last with a score of 4.0.

Project Number: JCS010 **Grade**: 6

Title: Perception Deception

Abstract: My project attempts to show if perception affects your sense of taste. I filled 6 cups with carbonated water of which 5 were colored using non flavored food coloring. I also filled 6 brand name bottles of various sodas with colored waters matching as close to the color of the real brand soda. Subjects tasted the 6 samples three times: First blindfolded, then with the colors visible and finally with the brand name bottles visible. The subjects' perception of the

colored samples did not affect their sense of taste. I concluded that perception does not affect your sense of taste.

Project Number: JCS011 **Grade**: 6

Title: Which brand of battery is best?

Abstract: I decided to conduct this experiment to test which brand of battery a Duracell, Eveready, Energizer or Rayovac runs the longest I hypothesize that the Duracell brand will last the longest. I tested the batteries by using identical flashlight for each brand of battery tested. I ran four separate trials of each battery brand. My results showed that Energizer lasted the longest, followed by Duracell, Eveready and Rayovac. In Conclusion, my hypothesis wasn't correct, Energizer indeed lasted the longest, out of the four trials.

Project Number: JCS012 **Grade**: 6

Title: Bacteria Blaster

Abstract: The purpose of my science fair project was to find whether Clorox disinfectant wipes clean a surface better than a solution of water and vinegar. My hypothesis for this project was that Clorox disinfectant wipes would be more effective than water and vinegar. The way that I measured the responding or dependant variable was by visual count and then I measured the colonies in millimeters. The results show that my hypothesis should be rejected because both products are effective, but water and vinegar work better at killing germs and bacteria.

Project Number: JCS013 **Grade**: 6

Title: Perfectly Polished Pennies

Abstract: Many people around the world drink soft drinks every day. Do you? Would you still drink it if you knew your favorite soft drink could clean the dirt off a penny? The purpose of my experiment is to determine which of five popular soft drinks can clean the dirt off a penny the best. I put a dirty penny in each of the five soft drinks and didn't touch them for a week. At the end of the week, I removed the pennies and determined that Pepsi cleaned the pennies the best.

Project Number: JCS014 **Grade**: 6

Title: Rising Cupcakes

Abstract: The purpose of my project was to determine which substance other than baking soda you can use to make a cupcake rise. In my experiment, I made the cupcake mix without adding the baking soda. Then I split up the cake mixes into four bowls evenly by pouring them by fourths. When I was done pouring the mixing evenly into the four bowls, I labels then bowls separated flour + sugar, yeast, flour, and baking soda. Then I poured the cupcakes mixes into the cupcakes holders and baked them. My conclusion was that the baking soda made the cupcakes raise the highest then flour, next flour + sugar, and yeast last. Other future ideas is that maybe someone else could do a problem like what other temperatures and time limit could make a cupcakes golden brown or something like that.

Project Number: JCS015 **Grade**: 6

Title: Soda vs. Water

Abstract: My project idea came from a magazine we were reading in class and it had a article about oil and I was interested in it so I picked oil as my topic for my science fair project. The experiment I performed was about what cleans oil better soda or water? It took about 1 hour to perform the experiment and 30-50 minutes to record the data. It Was a very fun science fair project to perform and I had a lot of fun thinking of the idea. This was also my first ever science fair.

Project Number: JCS016 **Grade**: 6

Title: Hilarious Heart Rates

Abstract: The purpose of this experiment was to find what different genres of movies would affect the heart rate in the teens the most. To conduct this experiment I needed to test three teen subjects by letting them watch the genres of movies and letting me record their heart rates. The experimental results were measured by the changes of the three subjects heart rates. The results of the experiment indicate that the hypothesis should be correct because I said the heart rate would go higher on the scary movie and it did.

Project Number: JCS017 **Grade**: 6

Title: Which Silly Band is Most Durable?

Abstract: I tested silicone bracelet bands called Silly bands and two generic brands to see which brand are most durable. I picked this topic because Silly Bands are very popular these days and I wanted to see which brand to buy. My test determined how many pennies each Silly Band can hold before it breaks. I did this at room temperature, and at warmer and colder temperatures. From my experiments I found out that the name brand Silly Band was the strongest and most likely most durable.

Project Number: JCS018 **Grade**: 6

Title: Teeth Vs. Acid

Abstract: The purpose is to determine what the effect of different levels of acids is on teeth enamel and to make a better drink that is healthier so it can't affect people's teeth.
The procedures are that I took different acids and different kinds of sea shells and put them in the acid and change them every 2 days in a week. The data was that Vinegar ate all the shells I gave it, so acids wins. My conclusion was that the reason Vinegar won because the acid in had a different effect and different reaction that's why I think Vinegar won. I think that instead of doing shells I could do egg shells next time.

Project Number: JCS019 **Grade**: 6

Title: Grip or Slip Wax vs. Wax

Abstract: I picked a project that pertained to my sport. I picked surfing. In surfing you have to have wax on the board so I tested which wax provided the best grip. I hypothesized that the surf wax would provide the most friction. The first thing I did is I rubbed wax on the board and

then I shot the rock down the board. After the rock stopped I measured how far it went. I recorded the data and repeated my procedure 3 times for each wax (surf wax, bees wax, paraffin). In conclusion wax 1 provided the most friction. I did prove my hypothesis.

Project Number: JCS021 **Grade**: 6

Title: How Permanent Are Permanent Markers?

Abstract: I wanted to find out how permanent markers really are. So I decided to get different solvents (toothpaste, rubbing alcohol, baking soda, hand sanitizer, and nail polish remover) and rub them over a plastic container lid that I colored with red permanent market ink. I poured some of the solvent onto a sponge. I rubbed the sponge on the plastic lid for thirty seconds. Then I measured to see how much of the permanent ink was removed from the lid. I thought that either rubbing alcohol or even baking soda
would remove the most, but when I was finished baking soda removed the least out of all my solvents. Rubbing alcohol turned the whole area light pink. Nail polish remover removed the most. Then hand sanitizer, toothpaste, rubbing alcohol, and baking soda. My hypothesis was wrong.

Project Number: JCS022 **Grade**: 6

Title: Change Color, Save Energy

Abstract: Problem: If we changed the color of the window glass, which color will reserve the warmest temperature during the winter months? I believe that the color black would conserve the most heat during the winter months. Procedures: cover a glass box with colored cellophane, insert a thermometerm and record. Repeat with various colors.

Project Number: JCS023 **Grade**: 6

Title: Hot Hands

Abstract: I chose this experiment to determine how long and how hot hand warmers could get. I did this to show what hand warmer elderly people would need the most in the cold winter. My hypothesis is that hot hands 2 would be the hottest of all the commercial hand warmers I tested. My homemade battery hand warmers were tested also for which would last the longest and be the hottest. My conclusion was that the homemade C battery was the hottest and the hothands 2 retained the heat the longest.

Project Number: JCS024 **Grade**: 6

Title: Searching for the Perfect Search Engine

Abstract: The purpose of the experiment was to figure out what popular search engine company gave the most relevant results. I researched words and placed the data in a blind survey. I had the surveyed choose which engine produced more relevant searches per search. I then compiled this data into one ratio. Of the 164 questions asked, 84 were in favor of Google's results and 80 were in favor of Yahoo/ Bing's results. This minimal difference shows that both company's search relevancy are relatively equal. Therefore either engine can be used in daily life for maximum results.

Project Number: JCS025 **Grade**: 6

Title: Lights Out

Abstract: The purpose of my project was to see which battery lasts the longest. The AAA batteries I was testing were Energizer, Werker (generic),Rayovac, Duracell and Camelion (generic). I thought of the idea because I use AAA batteries a lot for remotes and games. I also thought it would be helpful to many people and myself. Although my hypothesis was correct and Duracell batteries did last the longest. My experiment proved that off brand batteries gave you the best value.

Project Number: JCS026 **Grade**: 6

Title: Dawning Bubbles

Abstract: I wanted to know want temperature of water activated Dawn dishwashing soap to bubble the most. I used 3 different temperatures of water (80„aC, 60„aC, and 40„aC) and the Dawn dishwashing liquid. I agitated the solution 3 shakes for each test and tested each temperature of water 3 times. I gathered data by measuring the height of the bubbles in centimeters. I came to my conclusion that using hottest temperature of water created the most bubbles.

Project Number: JCS027 **Grade**: 6

Title: Which antacid works the best?

Abstract: The purpose of the investigator's project was to see which antacid works the best. The investigator tested four different antacids. He wanted to determine which antacid was the best at neutralizing lemon juice which has a pH that is close to that of stomach acid. The investigator hypothesized that Tums would be the best antacid. After testing, he determined that Alka-seltzer best reduced the acidity of the lemon juice.

Project Number: JCS028 **Grade**: 6

Title: Apples and Apples

Abstract: I am going to find out what wrapping material keeps two cut apples fresh the longest. What I’m going to do first is cut up the wrapping and lay them out. After that, get the two apples out and then take a picture of what they look like. Finally, I’m going to start the experiment and record data of what happened. I hope to find what type of wrapping is best to store cut apples in.

Project Number: JCS029 **Grade**: 6

Title: Crest vs. Colgate: Which one whitens teeth better?

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

Project Number: JCS031 **Grade**: 6

Title: Hand Glowing Bacteria

Abstract: I decided to experiment on the best way of washing hands. The materials that I used were germ lotion, black light, cold water, warm water, hand sanitizer, and hands of classmates. I asked groups of students to put the lotions on their hands. They rubbed in the lotion and washed their hands in a certain type of water or hand sanitizer. When they were done, their hands were put under a black light which showed the germs that remained on their hands. I conclude that cold water was the best and sanitizer was worst at removing germs.

Project Number: JCS032 **Grade**: 6

Title: Greener Bread

Abstract: The purpose of my experiment was to see what environmental condition was best to prevent bread from molding. I did this by storing bread in a combination of 3 conditions based on light, moisture, and temperature. I used a tree diagram to develop all environmental conditions pertaining to light, moisture, and temperature. I set-up 3 trials for each of the 8 conditions. Based on research, I hypothesized that the best condition to prevent mold would be dark, dry, and cool. I measured the percentage of mold once a week using a transparent sheet of graph paper.

Project Number: JCS033 **Grade**: 6

Title: Alka Seltzer Tablets - Time to Fizz!

Abstract: The purpose was to determine if whole, half, or crushed Alka Seltzer tablets dissolved the fastest. Whole, half, and crushed tablets were placed in water, and the times to dissolve were recorded in seconds. The data was displayed in a data table and bar graph. Crushed tablets dissolved the fastest because they have the most surface area.

Project Number: JCS034 **Grade**: 6

Title: It's a Germ" World After All

Abstract: My question for my project states: Which disinfectant kills germs most effectively? From my research, I hypothesized that Clorox Clean-up with bleach would be the most effective disinfectant in killing germs because bleach is thought to be the most powerful germ killer. I tested six different disinfectants and counted the colonies found on each petri dish, which contained blood agar to grow the bacteria. After a three-day incubation period, the petri dish with the least amount of colonies determined the most effective disinfectant. My results showed Clorox Clean-Up with Bleach had the fewest number of colonies grown on its petri dishes.

Project Number: JCS035 **Grade**: 6

Title: Shocking Substances

Abstract: In my project I hope to find the best household battery and the best battery considering store bought and household made batteries. Then I started thinking, what would make the best battery. I think that apple cider vinegar will make the best battery. The control in

my project is the C battery. The variables in my experiment are the household batteries. I am changing them by adding one zinc nail and a piece of thick copper wire. To measure the variables in my experiment I will test them with a volt meter.

Project Number: JCS036 **Grade**: 6

Title: Oops, I Shrunk My Shirt

Abstract: The experimenter's purpose was to determine which type of fabric shrunk more when machine-washed: eco-friendly or conventional. 3 fabric swatches were collected and washed on the normal cycle without soap. After washing, they were placed into a dryer on a normal cycle. Each was measured when dry. Bamboo shrunk the least; its mean was above the control measure of 9.11 cm2 probably from fraying. Silk shrunk the most with the average 19.56 cm2 less than the control. I concluded that conventional fabrics shrink more than eco-friendly. This is relevant to consumers since eco-friendly fabric clothing may shrink less than conventional.

Project Number: JCS037 **Grade**: 6

Title: Trident vs. 5 Gum

Abstract: The purpose of this experiment was to see which gum between Trident and 5 Gum lasts longer. The taste was compared among how long the gum lasted in the person's mouth. The gum was divided into two variable groups that got different gums after each trial. To see how long the gum lasted I used a timer to time how long the gum lasted. The longest gum time lasted in trials 1,3. The shortest gum time lasted in trials 2,4. The results indicated that my hypothesis was correct. The gum that lasted longer was 5Gum that was my hypothesis.

Project Number: JCS038 **Grade**: 6

Title: Fatty Nuts

Abstract: The purpose of my project is to find out which nut contains the most fat because my mom wants to eat healthy foods. My hypothesis was that if I crushed up three different kinds of nuts (brazil, walnuts and peanuts), and let them sit on a brown paper bag with a coffee mug to weigh the samples down for 24 hours, the peanut would contain the most fat. All nuts were natural and unsalted. My hypothesis was the peanut contained the most fat. After I did nine tests (three tests a day) to average the amount of fat by measuring the diameter of the "fat" circle, the walnut contained the most fat, then the Brazil nut, and then the peanut. My hypothesis was not supported.

Project Number: JCS039 **Grade**: 6

Title: Stain Removal

Abstract: The purpose of my project was to find out what type of substance removes a spaghetti sauce stain the best. I did this by pouring spaghetti sauce onto a white shirt and then poured one of my five substances onto each stain. Then I washed each one and waited for it to dry. The Dawn dish washing liquid removed the stain the best. I then washed the shirt again about a week later. My hypothesis should be accepted because my hypothesis was that the Dawn dish washing liquid would remove the stain the best.

Project Number: JCS040 **Grade**: 6

Title: Mirror, Mirror on the Wall

Abstract: Are left handed people faster at mirror writing than right handed people? I asked three lefties and 3 righties to each write the same sentence which I timed. The results showed an average right time of 60.00 seconds and lefties at 70.00 seconds. I rejected my hypothesis and accepted a null hypothesis because there is no significant difference between the two.

Project Number: JCS041 **Grade**: 6

Title: Amazing Vitamins

Abstract: Determine what vitamin is healthiest for children. Procedures: First I searched the internet for which vitamins I would be comparing, and find their labels. The vitamins that I chose were animal were Parade Chewables, Rhino Sour Chewy Vites, Flintstones Complete Chewables, Flintstones Gummies, Flintstones Sour Gummies, and Yummi Bears Organic. I wrote charts comparing the calories, carbohydrates, sugar, sodium, and lead level. I found out the lead levels on the FDA website. It turns out that my hypothesis of the organic vitamins being the healthiest was completely wrong. It turns out that the organic vitamins were the least healthy for you. The one that was the healthiest for children was the Flintstones complete chewables.

Project Number: JCS042 **Grade**: 6

Title: Staining of Teeth

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

Project Number: JTM002 **Grade**: 6

Title: B.U.B.B.L.E.S.

Abstract: Which mixture makes the best bubble and the hardest to pop?

Project Number: JTM003 **Grade**: 6

Title: Bacon Grease

Abstract: The purpose of the experiment was to find which brand of bacon had the least amount of grease. Procedures: weighed a single slice of bacon and bowl, cooked for 2 ½ minutes, and weighted the grease in the bowl, found the percentage of grease, repeated all steps with each brand of bacon. Results: Sugardale 43%, Oscar Myer 31%, Butterball Turkey 11%, Giant Eagle 23%, and Applegate 33% (organic). Conclusion: turkey bacon had the least amount of grease but the most sodium. Sugardale had greatest fat, which is why it had the most grease.

Project Number: JTM004 **Grade**: 6

Title: Books, Books, and More Books

Abstract: Which bookstore is the best to buy from?

Project Number: JTM005 **Grade**: 6

Title: Brown, Brown, Turn Around!

Abstract: The purpose of our science project was to investigate ways to stop apples from browning. Our hypothesis was that we thought lemon juice would brown the least.
The procedure we used was putting different solutions on the apples to see which one would stop browning the best. We placed slices of apples into the bowls and after a period of time we would write their level of browning. The data we collected showed that lemon juice was the best ingredient to stop the apples from browning. In conclusion, we found which acid worked best in stopping apples from browning.

Project Number: JTM006 **Grade**: 6

Title: Can I.M. live in polluted Waters

Abstract: Our project was testing if intolerant macroinvertebrates can live in human-touched waters. We tested this by going to two creeks: Abers Creek and Squaw Run Creek. At each creek we collected macroinvertebrates and identified them. At school we determined their tolerance to pollution and checked the water chemistry of water samples we collected. Of the two creeks that we tested, Abers Creek was more polluted. Our conclusion was that intolerant macroinvertebrates cannot live in human-touched waters. We decided this because intolerant macroinvertebrates can live in clean water, but not in heavily or mildly polluted waters.

Project Number: JTM008 **Grade**: 6

Title: Cheaper vs Pricier

Abstract: We wanted to find out if the brand name was really worth the price. We thought the Coke Cola and the Wildwood Soda would be impossible to find the difference between them, and it would be easier to distinguish the taste between Pepsi and Coke. We had 9 people sample the pop and recorded the result. We, then, figured out that most people could easily find the generic pop (Wildwood), and it is probably wise to buy the brand name pop, if you want a successful taste.

Project Number: JTM009 **Grade**: 6

Title: Cookie Mania

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

Project Number: JTM010 **Grade**: 6

Title: Creek Chemistry

Abstract: The purpose of our project was to determine the health of Dark Hollow and Glade Run Creeks. To determine the health of these two creeks, we obtained water samples and measured the pH and dissolved oxygen levels. We also observed the aquatic life. The dissolved oxygen levels for both creeks were 8.0 mg/l. The pH results ranged from 6.61 to 7.0. From our observations of aquatic life and water chemistry analysis, we demonstrated that the two creeks were very similar and both supported
diverse aquatic life.

Project Number: JTM011 **Grade**: 6

Title: Exploding Pop

Abstract: The Mentos and pop experiment was an experiment I had heard about before. I was curious to see which kinds of pop fizzed the highest. I tried dropping 1 Mentos into 4 different types of pop. They were a mix of colored and clear pop: 2 with caffeine and 2 without. The result was that Coke fizzed the highest, Sprite was second, then Dr. Pepper, and Sunkist came in last. The heights of the pop fizzing out of the bottle varied. My hypothesis of this experiment was correct.

Project Number: JTM012 **Grade**: 6

Title: Fight for Flight

Abstract: For our project we are seeing if a car/tank can be self-guided and perform daily chores around the house. It would also be solar-powered. If this works it might become a type of transportation and a flying transportation vehicle. This could stop accidents and pollution. We will have to do a number of tasks and go through an obstacle course. The robot will be a basic protocol. We will attach different sensors and program them to do different jobs. Research is still being conducted. Final abstract will be available at my exhibit on Fair Day.

Project Number: JTM013 **Grade**: 6

Title: Growing Bold Mold

Abstract: **Abstract**: Our experiment will show that living life forms cannot be generated by non living life forms. Take six jars, fill with broth. Boil broth to sterilize & broth becomes transparent. When broth is cloudy, living organisms are present. On 2 jars, open so that dust can get in, 2 others open and tape a piece of paper on the top so that dust cannot get in but air can, the last two, lids are left on. Hypothesis -two jars with the top on will stay sterile, the two with the paper will grow some living organisms, and the two with nothing will grow living organisms much faster.

Project Number: JTM014 **Grade**: 6

Title: H2O + C3H8O =FUN

Abstract: Our science experiment's purpose determined how much alcohol creates an ice pack that molds to the knee. We took a Ziploc bag, added 2 cups of water, 2 drops of food coloring, set amount of alcohol, and mixed it well. We repeated this process with each amount of alcohol listed in our chart, then put them into the freezer. After 48 hours we felt each bag at the time increments of 0,15,30, and 45 minutes. We
learned that our hypothesises were wrong, and the ice pack containing 1/2 cup of alcohol and 2 cups of water worked the best.

Project Number: JTM015 **Grade**: 6

Title: How Cell Phone Waves Effect the Life Span of Crickets

Abstract: Crickets are used more for food than for pets. Our science fair project was to see if cell phone radiation would kill crickets. The reason we did this project was we thought it would be fun to work with crickets. First we put holes in the top of the container. Then we put a slice of potato and a wet cotton ball in the container. Then we observed. We found out that we have cave crickets. In conclusion we found out that crickets that don't live near a cell phone live longer than crickets that do live near a cell phone.

Project Number: JTM016 **Grade**: 6

Title: Laughing Life Finders

Abstract: We decided to go to two different creeks, and compare them. In the creeks we have flipped over rocks. Under the rocks we looked for different creatures. Tadpoles were found in both creeks. We also saw three crayfish. One reason why the creeks were clean was because we saw a stonefly, and they are very sensitive to pollution. We determined that both creeks were healthy because we found sensitive macroinvertebrates.

Project Number: JTM018 **Grade**: 6

Title: Looking At Lettuce

Abstract: What type of storage condition will keep Iceberg Lettuce fresh for the longest period of time? We predicted that the temperature and the amount of oxygen the lettuce is exposed to affects the freshness of the lettuce. we bought a head of lettuce and split it into three

pieces. We put each of them in bags, one in the refrigerator, and two in room temperature. One of the room temperature bags, along with the one in the refrigerator didn't have oxygen in it. The other room temperature bag had oxygen in it. We took pictures every few days.

Project Number: JTM019 **Grade**: 6

Title: Melting Down

Abstract: Trying to find out what melts ice the fastest.

Project Number: JTM020 **Grade**: 6

Title: My Pepsi ate my egg!

Abstract: Our team proposed to find out what liquids most affected our bones. First we boiled 5 eggs then we soaked them in soda and vinegar for one week. We checked the eggs everyday by placing them between the thumb and forefinger and squishing them gently. The eggs in the soda and the water showed no difference. The egg in the vinegar became very squishy and dissolved. We think the vinegar is worst for your bones. We think the eggs did not soak long enough in the soda to see any affect or eggshell doesn't represent your bones correctly.

Project Number: JTM021 **Grade**: 6

Title: Powering an Ipod Touch Using Fruit

Abstract: For our Science Fair project, our team wanted to see which type of fruit battery, lemon or apple, would be able to power an iPod. Our hypothesis was that the lemon would be the best. We created a string of 6 apples in series with an LED in the circuit and measured the voltage and the current. We repeated this for the lemon. Our results showed that even though the apple initially had more voltage then the lemon, the lemon produced more current. We estimated that we would need over 27,000 lemons and over 50,000 apples to charge the iPod.

Project Number: JTM024 **Grade**: 6

Title: Quad Fuel Car

Abstract: Our purpose of this experiment is to make a quad fuel car. Our model will be made out of an R.C. car top with model sets. Our procedures will be to make graphs about the different fuels based on their weight, how far they go, average size, and price per unit. Once we figure out the best fuel we will customize our model to make it like a car that will have four different fuels. Research is still being conducted. Final Abstract will be available at my exhibit on Fair Day.

Project Number: JTM025 **Grade**: 6

Title: Rockets: Liquids vs Solids

Abstract: Our team set out to find which rocket would fly the highest; a liquid rocket fueled by Ethanol and 85% HTP 120grams or a solid rocket fueled by a 6:1:1 ratio KNO3 sulphur-

charcoal 120 grams. Research is still being conducted. Final Abstract will be available at my exhibit on Fair Day.

Project Number: JTM027 **Grade**: 6

Title: Roots, what will I grow to be?

Abstract: Throughout our experiment we grew Wisconsin Fast Plants. During the first growing, we gave two plants three fertilizer pellets and the other two plants did not receive anything. After all of the plants had developed seeds, we harvested the seeds and randomly chose a seed from each plant to grow again. These seeds were all replanted and treated normally with the basic needs and three fertilizer pellets. Research is still being conducted. Final **Abstract** will be available at my exhibit on Fair Day.

Project Number: JTM028 **Grade**: 6

Title: ShamWow or ScamWow

Abstract: Our experiment tested if ShamWow towel is more absorbent than other household towels, and if it can absorb 12-times its weight of water, as claimed. To do this, we compared ShamWow to paper, microfiber and cotton towels of the same weight and tested how much their weight in water they absorbed. ShamWow absorbed 8.6-, microfiber 3.5-, cotton 4.3-, and paper 8.5-times their weight in water. We conclude that ShamWow did not absorb 12-times its weight in water; paper absorbency is similar to ShamWow; and both ShamWow and paper absorbed water better than microfiber and cotton towels. Therefore, ShamWow is ScamWow!

Project Number: JTM030 **Grade**: 6

Title: Snakes and Fish of Squaw Run

Abstract: Our experiment was focused on finding if the speed of the creek water affects the amount of fish and snakes in Squaw Valley Creek. We surveyed the land, and took pictures and video of the slow moving water. We lifted rocks and thoroughly searched the area. We then took pictures and video of the specimen that we found. We also did this same procedure in the fast moving water. At Squaw Valley Creek we found animals, fish, and insects. We were correct about the fish preferring to be in deeper slower moving pools because that is where we found them.

Project Number: JTM031 **Grade**: 6

Title: Speak!

Abstract: We researched animals that understand or mimic human speech. We then proceeded to research each animal's brain. Each of the animals we researched (chimpanzee, dog, parrot) had a large cerebral cortex. The cerebral cortex controls language. We concluded that animals with abnormally large cerebral cortex, compared to their brain size, have a greater ability to understand human speech as well as their own.

Project Number: JTM033 **Grade**: 6

Title: Super Capacitor

Abstract: The purpose of our experiment was to reduce pollution and how not to use a battery. For this project we made a capacitor and solar panel. We borrowed the motor from our Science teacher. Our solar panel will absorb the sunlight and will be stored in the capacitor. The motor will then produce energy. Research is still being conducted. Final **Abstract** will be available at my exhibit on Fair Day.

Project Number: JTM034 **Grade**: 6

Title: That Makes Sense!

Abstract: The purpose of our experiment was to determine whether your sight affects your taste. To test our theory we decided to use a group of second group students. We dyed water red, purple, and green with McCormick food coloring. Our control group will be tasting the water with blindfolds on and the experimental group will not be blindfolded. Each student will be asked to taste a sample of each of the colored waters and describe what they tasted. In theory, we think that the blindfolded children will taste the water and the non-blindfolded children will think that the water had flavor.

Project Number: JTM035 **Grade**: 6

Title: The Colorful Mind

Abstract: Do you ever wonder if color affects your memory? We collected color photos, black and white photos, and primary color images to show subjects. We showed people a total of 45 images and asked them which ones they remembered. Most people remembered the primary images the best. We think that people remembered them because they were the simplest and clearest. We think people prefer simple clear images best. Research is ongoing.

Project Number: JTM036 **Grade**: 6

Title: The Exploding Experience

Abstract: We used Diet Coke and Mentos, shaken soda, frozen Pepsi, vinegar, and baking soda. We wanted to try and find out what reaction would go the highest. Research is still being conducted. Final **Abstract** will be available at my exhibit on Fair Day.

Project Number: JTM037 **Grade**: 6

Title: The Lincoln High Dive

Abstract: We wondered if a penny, resting on a hoop, would follow the motion of the hoop when it was flung sideways - or would it drop straight down to the glass below? Would the size of the hoop cause different outcomes? In our experiment, the speed at which the hoop was moved remained constant. It was discovered that a medium-sized hoop (7-9 inches) had the best accuracy. In the future, other experiments on this subject will be done to measure the speed required to allow the penny to drop.

Project Number: JTM038 **Grade**: 6

Title: The Magic of Magnetic Levitation

Abstract: In our experiment we wanted to see what the most efficient material would be to build a magnetic levitation train. We wanted to see which material would levitate it the highest and fastest. The materials we will use are iron, aluminum, and wood. We will measure the highest in inches and the fastest in seconds. Research is still being conducted. Final Abstract will be available at my exhibit on Fair Day.

Project Number: JTM039 **Grade**: 6

Title: Wait-who am I Again? Or-who are we?

Abstract: Our experiment was to find out more information about the pros and cons of Dissociative Identity Disorder (DID). DID is a mental disability where you have multiple personalities and constantly switch unconsciously because of severe childhood trauma. We spoke to a few experts and researched information about the subject. Many people find it hard to believe that DID really exists, and think it is a make-believe illness. However, we believe that this disease is real, and hope to educate the public about this awful, rare disorder.

Project Number: JTM040 **Grade**: 6

Title: Which Fertilzer Works the Best for Plants?

Abstract: The purpose of our experiment is to see which fertilizer works the best for plants. Using lima beans for seeds we put them under a growth light and observed them for 15 days. We used dirt, liquid organic, liquid non-organic, dry organic, and dry non-organic. We found out that liquid organic fertilizer made the plant healthy and tall.

Project Number: JTM041 **Grade**: 6

Title: Which Baggie Preserves Food the Longest?

Abstract: We chose our topic because we thought it would be interesting to find out which bag is most cost effective. Our purpose was to find which bag is more cost effective and which one will keep your food from spoiling. Green bags were the most cost effective. Our procedures were to put one banana in each of the bags, Wait seven days and then take pictures during that time. In our experiment it took most of the week for the banana to spoil. It was about the fourth day until there was a change in the banana.

Project Number: JTM043 **Grade**: 6

Title: Which Brand of Popcorn Pops the Fastest?

Abstract: Purpose: To find which brand of popcorn pops the fastest. Procedures: 1. We bought the popcorn; Orville Redenbacher's, Pop Secret, Boy scout brand, Giant Eagle brand. 2.We popped the popcorn and recorded data. Data: Orville Redenbacher's popped the fastest, Giant Eagle brand popped the second fastest, Boy scout brand popped the third fastest, and Pop Secret popped the slowest. Conclusion: Our hypothesis was wrong. Pop Secret popped the slowest, but we thought Giant Eagle brand would. We also thought that Boy scout brand would pop the fastest, and Orville Redenbacher's did.

Project Number: JTM044 **Grade**: 6

Title: Which Diaper Brand Holds the Most Liquid?

Abstract: The purpose for doing this experiment is to tell which brand of diaper (Pampers, Huggies, GoodNites, or Gerber cloth diapers) can hold the most liquid without leaking. To test this we poured colored water on the diaper at intervals of 15 mL until we reached thirty. Then we switched to intervals of 5 mL. The cloth diaper leaked first at 65 mL. Next was Huggies at 150 mL. Then Pampers leaked at 180 mL. And our winner, GoodNites, did not leak without applied pressure. So, our conclusion was that GoodNites could hold the most liquid.

Project Number: JTM046 **Grade**: 6

Title: Which Fruit has the Highest Water Content?

Abstract: Our project was which fruit has the highest water content. The purpose of the experiment was to find out which fruit was mostly water. The fruit with less water is cheaper to ship. Our procedures are first to weigh each fruit individually on a digital scale measuring in grams. Next, we cut the fruit into half inch slices, weigh it again, dehydrate it, and weigh it again. Our hypothesis was correct, so we found that the watermelon had the highest water content.

Project Number: JTM047 **Grade**: 6

Title: Which Terrain Does Penn State Grass Grow Best In

Abstract: This experiment was to find out if Penn State grass grows better in one terrain than others. Three cups, one filled with water, one with sand, and one with mulch, were filled with Penn State grass seeds and water. The cups were kept in the same environment. Over 16 days, the growth (in mm) was recorded. It was concluded that the seeds grew best in mulch, although all cups showed growth

Project Number: JTM048 **Grade**: 6

Title: Leaf's Life Span

Abstract: Purpose: Does the type of leaf affect how long it takes for it to turn brown?

Procedures: We will be experimenting to see if the type of leaf affects how long it takes for a leaf to wither. We will select two leaves that have different properties. Then we will place them in the same environment. We will then monitor them and record as they wither. Our conclusion will be based on which leaf turns brown and withers faster, or if they die at the same rate. Data analyses: We will analyze our data and records by showing our information on a double line graph. A double line graph will show this information best because it can show how much the two leaves have withered over time and it is easy to compare. We will also make a t-chart to show facts giving information on a leaf's life span that may affect our conclusion. Data summary: When researching, we found several sites and facts that say that the properties of leaves affect how long it takes for them to wither. For example, we found out that waxiness causes leaves to last longer. Conclusion: We conclude that the type of leaf does affect how long it takes for it to turn brown. We tested 2 different leaves (American holly and Christmas

cactus). Over an interval of 2 weeks, we observed that the holly leaf withered quicker than the cactus leaf

Project Number: JTM049 **Grade**: 6

Title: Ecofriendly Lightbulbs

Abstract: Eco-Friendly Light Bulbs is an experiment meant to determine what light bulbs will save the most money and energy over time. First we obtained and found the cost of 3 different types of light bulbs. Next we predicted the energy over a 24 hour period. Then we measured the energy over the same twenty-four hour period. We measured that a Compact Fluorescent used 0.22 KW-hrs, an incandescent light bulb uses 0.97 KW-hrs, and an LED used 0.16 KW-hrs. Once we verified that our prediction matched our measurement, we predicted how much energy is used over the life of the bulb. Lastly, including the cost of the bulbs, we decided which saves the most money and energy. After this experiment, we realized that the LED is more efficient and costs less than a compact fluorescent and is much more efficient and costs much less than an incandescent light bulb. We also learned from our research that a compact fluorescent bulb contains mercury, but an LED light bulb does not, which is further reason for selecting the LED as the most eco-friendly.