

Science Day Participants

Poster Number	Name	School	Teacher
1	Hayden Zeller & Ben Hamberg	New Bremen Local Schools	Mrs. Amy Poeppelman
2	Ethan Heitkamp & Luke Kunkler	Marion Local Schools	Mrs. Laura Post
3	Lydia Hess	Marion Local Schools	Mrs. Laura Post
4	Vincent Winner	Marion Local Schools	Mrs. Laura Post
5	Hayden Poeppelman	Marion Local Schools	Mrs. Laura Post
6	Emerson Bruns	Marion Local Schools	Mrs. Laura Post
7	Ian Rindler	Marion Local Schools	Mrs. Laura Post
8	Garret Voskuhl	Marion Local Schools	Mrs. Laura Post
9	Ava Ranly & Alex Schulze	Marion Local Schools	Mrs. Laura Post
10	Jayme Buening	Marion Local Schools	Mrs. Laura Post
11	Austin Niekamp	Marion Local Schools	Mrs. Laura Post
12	Damon Cramer	Marion Local Schools	Mrs. Laura Post
13	Daniel Everman & Ryan Homan	Marion Local Schools	Mrs. Laura Post
14	Parker Hess	Marion Local Schools	Mrs. Laura Post
15	Benton Seitz	Marion Local Schools	Mrs. Laura Post
16	Kristen Bergman & Lauren Kramer	Marion Local Schools	Mr. Jeff Kaup
17	Olivia Schulze	Marion Local Schools	Mr. Jeff Kaup
18	Dean Hemmelgarn & Troy Stucke	Marion Local Schools	Mr. Jeff Kaup
20	Halley Schmitz	Marion Local Schools	Mr. Jeff Kaup
21	Lilly Dahms	Marion Local Schools	Mr. Jeff Kaup
22	Noah Moles & Christian Frysinger	Marion Local Schools	Mr. Jeff Kaup
23	Jocelyn Tuente & Madisen Davis	Marion Local Schools	Mr. Jeff Kaup
24	Riley Bruns & Dean Smith	Marion Local Schools	Mr. Jeff Kaup
25	Lauren Kuck	Marion Local Schools	Ms. Margaret Kuck
26	Carter Unrast	Marion Local Schools	Ms. Margaret Kuck
27	Jack Knapke	Marion Local Schools	Ms. Margaret Kuck
28	Brandt Homan	Marion Local Schools	Ms. Margaret Kuck
29	Landon Arling & Aiden Grieshop	Marion Local Schools	Ms. Margaret Kuck
30	Dayne Pohlmann & Wes Schoen	Marion Local Schools	Ms. Margaret Kuck
31	Camryn Swain	Marion Local Schools	Ms. Margaret Kuck
32	John Kramer	Marion Local Schools	Ms. Margaret Kuck
33	Audrey Winner	Marion Local Schools	Ms. Margaret Kuck
34	Ally Mescher	Marion Local Schools	Ms. Margaret Kuck
35	Jacob Smith	Marion Local Schools	Ms. Margaret Kuck
36	Isaac Griesdorn	Marion Local Schools	Ms. Margaret Kuck
37	Clara Barlage	Marion Local Schools	Ms. Margaret Kuck

ABSTRACTS

Poster Number: 1

Presenters: Hayden Zeller and Ben Hamberg

Title: **Which Energy Drink Will Increase Your Speed and Stamina More?**

In our project, we will be testing three energy drinks: Rockstar, Monster Energy and Red Bull. First, on day 1 we will have 5 students drink $\frac{1}{2}$ of a can of Monster Energy, on day 2, Rockstar and the last day they will drink Red Bull. They will drink it 15 minutes before running $\frac{1}{4}$ of a mile beginning at 11:50 am. We will then record our data after we timed how fast they ran and put it into excel and compare the times of each person to see which drink helped the most or didn't help at all.

Poster Number: 2

Presenters: Ethan Heitkamp and Luke Kunkler

Title: **Lemon vs Potato vs Celery**

The experiment we chose to do was test which food, celery, lemon, or potato, created the most voltage. We chose to do this because electricity from food power is not normal. In this experiment we learned that some food can be used as an energy source. We also learned that a lemon creates more voltage than the other food because of the amount of electrolytes.

Poster Number: 3

Presenter: Lydia Hess

Title: **What Type of Acid Dissolves Chalk the Best?**

In my experiment I tested the strength of three acids. Vinegar has acetic acid, yogurt has lactic acid, and coca cola has phosphoric acid. I dropped a piece of chalk in each acid and waited fifteen minutes. I decided to do this because it would help me know which type of acids are stronger and which are weaker. Also I tested this because many people don't know about the effects of acids on a substance like chalk. The chalk that was the most dissolved was the one I dropped in the vinegar because the ph level before dissolving chalk was 4, and then after the fifteen minutes the ph level was 5 so the vinegar must of had an effect on the $\frac{1}{2}$ piece of chalk.

Poster Number: 4

Presenter: Vincent Winner

Title: **How Much Stress Can a Bridge Take?**

My experiment was to test which design of bridge could hold the most and which bridge could take stress more than the others. The bridges I chose to construct were: beam bridge, suspension bridge, and truss design bridge. I chose this experiment because, one, I've always wanted to know, and two, engineers need to know this type of knowledge when they are contracted to design/build a bridge. The truss bridge took the most stress because of the strong form of its triangles.

Poster Number: 5

Presenter: Hayden Poeppelman

Title: **Summer in a Bag**

I chose to make heat warmers but instead of being activated by oxygen mine are activated by water. I did this because I wanted to create a hand warmer that was warmer than the ones in stores by adding more iron powder. I learned about oxidation and a scientific reaction that was the exothermic reaction of hand warmers. I learned that in order to create a hand warmer with more heat I needed to add more iron powder.

Poster Number: 6

Presenter: Emerson Bruns

Title: **Color Changing Carnations**

The experiment I chose to do is about changing the color of white carnations using food coloring and water. I wanted to observe if one color was more distinct than another. I chose to do this experiment because white flowers are boring and I wanted to jazz them up. I learned about the process of transpiration. I also learned that one color didn't always show up the darkest everytime. This proves other variables affect how much water gets sucked in which results in how dark the flower gets.

Poster Number: 7

Presenter: Ian Rindler

Title: **Net or No Net**

In this experiment I wanted to figure out if the presence of the net on a basketball hoop affects a person's free throw accuracy. To test this I had twenty people shoot twenty free throws with the net on, and then they took the same shots but with the net off. I did this experiment because I wanted to learn about how visual cues affect a person's play in a sports activity. The results of my experiment didn't support my hypothesis and really surprised me. I learned that the presence of the net on a basketball hoop does not affect your free throw accuracy.

Poster Number: 8

Presenter: Garret Voskuhl

Title: **What Melts Faster?**

For my experiment I chose to study the effects of sugar and salt frozen in cups of water. In this experiment I froze salt and sugar in cups of water and timed how long it took to melt compared to regular ice. The results that I got were that salt speeds the melting of ice the fastest but that sugar also sped up the melting of the ice. I chose to do this experiment to learn about the effects of salt and sugar on the melting rate of ice because I could use the information from my results to melt ice on my driveway faster during winter.

Poster Number: 9

Presenters: Ava Ranly and Alex Schulze

Title: **Finding Iron in Cereal**

We decided to find out the amount of iron in different types of cereals. We picked this topic because we were curious to see if we could attract the iron with a magnet. For this experiment we got amazing results from our cereals. Each cereal had a different amount of iron. Each cereal had a different amount of iron because of the ingredients and whether the company wanted to put in a lot or a little iron.

Poster Number: 10

Presenter: Jayme Buening

Title: **Electrical Motors**

To conduct my experiment of working an electrical motor, I wrapped a coil of wire around a 1.75 inch diameter bottle and placed it on a car axle LEGO. Then, I secured the wire with zip ties. Next I attached an on/off switch to a 9V battery with wire and taped brass to the axle. Then I bent the insulated wire to make contact with the brass. That's the motor. Then I snapped the magnet onto the table with a LEGO stand I made. After testing my experiment, I learned that when a magnet is farther than the object(s) it was pulling, the object(s) would feel less magnetic pull from the magnet. The results to prove it were that the RPM of the coil got lower as the magnet was moved farther and farther away from the motor. I chose this experiment to do because I wanted to know how an electrical motor would work with a magnet by it and how magnets would affect the electric motor's coil.

Poster Number: 11

Presenter: Austin Niekamp

Title: **Mold in Bread**

Have you ever wondered why your bread is molding? For my experiment, I chose to study mold on bread. There are many different variables that might affect my experiment. In my experiment, I put three different types of bread in my kitchen. I thought the homemade bread would mold the fastest. I learned that some breads mold better than others. I did this experiment to find out why bread molds.

Poster Number: 12

Presenter: Damon Cramer

Title: **Does Water Affect the Way Mold Grows?**

Have you ever wondered what mold needs to grow? Mold needs air and moisture to grow. In my experiment, I put ground up pieces of bread in bags and added different amounts of water to the bread to see which would mold the fastest. Since bread needs air to grow, I kept the bags open and kept them on a counter. I let the bags sit for five days while only looking at them. After five days I looked to see which piece of bread had more mold on it.

Poster Number: 13

Presenters: Daniel Everman and Ryan Homan

Title: **Reacting Rockets**

In our experiment we wanted to test what effect an alka seltzer tablet has on water and what effect gravity has on mass. We built three sizes of rockets, small, medium, and large, on the base of a film canister filled with water and launched them with an alka seltzer tablet. We learned that the more the mass an object has the stronger the pull of gravity resulting in the rockets not traveling as high. On the contrary, the less the mass of an object, the weaker the pull of gravity. This is important because if scientist want to travel to other planets or moons, they will need to build a rocket with enough power to get them there but with the least amount of mass they can.

Poster Number: 14

Presenter: Parker Hess

Title: **Plants Growing with Liquids**

For my science fair project, I watered three plants with Gatorade, lemonade, and water. I did this to see if I could water a plant with leftover Gatorade or lemonade from a party or something. I also did this to see if plants would survive from getting watered from these liquids so I don't water a plant with them and turn out that I killed it. I did this to see if the ingredients in lemonade or Gatorade had an effect in the growth of plants. I learned that the plant that I watered with Gatorade did the best and this really surprised me.

Poster Number: 15

Presenter: Benton Seitz

Title: **Safe Egg**

Have you ever wondered what is the safest material to use for fragile items? That's what I did in my experiment. I tried to find out what would be the safest material to use for fragile items. The first thing I did was ask myself what if a fragile item fell out of a box off a balcony. The first thing I did was drop an egg from 10 meters in a box with different materials around it. The another question I asked myself was what if I dropped a fragile item from the top of a church while moving things out to a new church, so I took eggs with the same materials around it and then dropped the box from 20 meters and saw my results. Just as I thought, the bubble wrap worked the best out of them all.

Poster Number: 16

Presenters: Kristen Bergman and Lauren Kramer

Title: **To Cheat or To Not Cheat**

Have you ever wondered how many of your students cheat on tests? Our project was to find out how many 4th graders would cheat when put in a room with “impossible games.” To find out, we had a video camera hidden in an empty room with three impossible games. One being a marble-guessing game which consists of a number of marbles in a box. Without looking, the student will have to guess how many big/small marbles were in the box. Another “game” was guessing the number of card matches without flipping over the cards. Lastly, the student must solve a very hard math problem and an advanced vocabulary word’s definition, both being ridiculously hard for a 4th grader to solve without cheating. We had three motives for the students to cheat or not to cheat. One being no reward, another a big reward, and the last being that every one of their classmates got the answer correct. We used 30 randomly selected 4th graders. Our hypothesis was that more students would cheat when they heard that their classmates got it correct, only some students will cheat when they hear that there is a reward, and that no kids will cheat when they hear that there is no reward. However, after the experiment was conducted, we found that the results from these 4th graders had proved us wrong. There were only 3 students who cheated when they heard that there would be a big reward. Overall, our hypothesis was incorrect.

Poster Number: 17

Presenter: Olivia Schulze

Title: **What Liquid Can Keep the Flowers Alive?**

For my project, I wanted to find out if flowers could live in different kinds of liquids, such as: water only, coffee, vinegar, pop (Mt. Dew), and water and plant food. After adding the different liquids, I watched and waited for the flowers to grow until only one remained alive. So far, my hypothesis is proving to be right, but not completely, because the water and plant food is doing good too. As of writing this abstract, the flower being fed the pop is doing well! The reason why the pop is doing so well is that the pop has an essential ingredient for plant growth called macronutrients. This is a very important part of the plant growth. In conclusion, for the flowers’ growth, there are two almost dead and three living strong. I will continue with my flowers growing and see which one is going to last the longest.

Poster Number: 18

Presenters: Dean Hemmelgarn and Troy Stucke

Title: **Combustion Chamber for a Potato Gun**

Potato guns are a fun and relatively easy project to make and shoot. We experimented with the concept of how the volume of the combustion chamber on the potato gun could affect the distance the potato will travel. This project starts with us shooting off potatoes into an open field and testing how far they can travel with the different chamber volumes. During test 1, the combustion chamber was measured at 4,408 cubic centimeters. The combustion chamber for test 2 was 2,939 cubic centimeters. The combustion chamber for test 3 was 1,469 cubic centimeters. We launched three potatoes for each different sized chamber and took the average of the three potatoes fired. The average of test 1 was 90.2 yards, the farthest of the three tests. Test 2 averaged almost exactly 57 yards. Test 3 averaged 15.8 yards. We concluded that our hypothesis was incorrect. Our hypothesis stated that as the chambers’ volume decreased, the potatoes would go farther than the larger volume pipes. Overall, we believe that this project was a success.

Poster Number: 20

Presenter: Halley Schmitz

Title: **Why Do We Need to Brush Our Teeth?**

Kids never want to brush their teeth, but do they realize the effects? The experiment I am doing looks at the effects of not properly brushing your teeth. To find what happens without brushing your teeth, eggs, which are similar in composition and appearance, are placed into different sugary liquids. To test both the effects of brushing and not brushing, twelve cups were filled with liquids. Each type of liquid was used twice and an egg was put in each, but only one of the eggs in the specific liquid was brushed. The point of this experiment is to show kids what is happening in their mouth if they do not brush. My hypothesis for this experiment was that the more sugar in the liquid, the worse the effect on the teeth. The rest of my prediction was that the teeth that are brushed will not have the amount of damage that the ones not brushed will have. My experiments' results supported my hypothesis by showing that the brushed eggs did not have the same damage as the eggs not brushed. The results also showed that the liquids with more sugar damaged the teeth worse than those with less sugar, even in the brushed ones. The experiment also revealed that the more sugar involved decayed the teeth faster and made them more susceptible to chips or breaks.

Poster Number: 21

Presenter: Lilly Dahms

Title: **Are Hamsters More Intelligent in the Day or Night?**

People are always wondering why their hamsters don't play during the day so in this experiment I will time my hamster going through a maze at night and in the day. This was accomplished with me putting my hamster in the same maze every morning at 5 and every night at 5 (Independent Variable). I am going to keep its food ($\frac{1}{5}$ cups every day) and the same panda bear hamster (Controls/Constants). The results, or the dependent variable, have proved much, such as the knowledge I now have that hamsters can run through a maze more energetically at night. This happens because hamsters are nocturnal animals.

Poster Number: 22

Presenters: Noah Moles and Christian Frysinger

Title: **Rocket Aerodynamics Basics**

In our science fair project, we are testing rocket's flight and how far each of our rocket's are going to fly. We are going to see how far different rocket's fly with one or two less fins, or crooked fins. First, to make sure that the rocket's can fly, we build the structure on a big tube. Then, we are going to use air pressure for every single one of our tests. Next, we are going to see which rocket's go farther than all of the rest of the rocket's by using a tape measure to accurately find the distance of their flight. Also, we are going to have a normal rocket shape; it will not be anything special shape-wise. We are going to change the shape and or maybe just reduce and change the shape and form of the fins that are going to be on the rockets. We will also make a couple of rockets to test with so we do not keep having to change the fins every time that we are done using one type. Finally, we are also going to launch all of the rocket's in an arched form so that they can glide through the air, and provide us with the best results possible.

Poster Number: 23

Presenters: Jocelyn Tuente and Madisen Davis

Title: **Fantastic Photosynthesis**

We know the formula for photosynthesis contains water, carbon dioxide, sunlight, glucose and oxygen. However, what happens if we take out one of the main components, aka carbon dioxide? For this project, we will have a plant that is grown in a container with seeds (control), and another plant that is blocked off from carbon dioxide. The blocked off plant will be planted inside of a large pop bottle (cap closed and hot glued shut) and watered through a tube. Both plants will be watered with ½ oz of filtered water every-other day, and will also both be in direct access to sunlight. Our hypothesis is that the plant that accommodates the bottle will not be able to live because without one of the main parts of photosynthesis, photosynthesis will not work, therefore causing it to die from the inability to make food for itself. This experiment will test how photosynthesis works without a “main link in the chain” and will give a deeper insight on how what seems like one small change can affect an entire plant.

Poster Number: 24

Presenter: Riley Bruns and Dean Smith

Title: **The PSI Effect**

Most people have probably never heard of PSI, or heard of it, but never knew what it was. PSI is the short term for pounds per square inch. PSI is used in measuring things like tire pressure. Our project will look at what PSI is and how it affects certain things. In the case of our project, we studied a baseball being projected from a pressurized canister, otherwise known as a “spud shooter.” First, we started out by picking out two PSIs that we would be able to use to get the best results. The reason we had to choose so carefully is because of outside factors that we had to be mindful of: chamber capacity, wind speed, and tilt angle. With these factors in mind, we decided to test 30 and 35 PSI (Independent Variable) at an angle of 45 degrees. With this experiment, we were able to test how PSI affected the distance traveled (Dependent Variable). In the beginning, we estimated that with the pressures we were operating from we would hit a high of only 65 yards under 30 PSI and a high of 73 under 35 PSI. In the end, we were able to find out the capability of PSI, because we were able to reach a high of 74 yards under 30 PSI and over 95 yards running on 35 PSI. We were able to get a better understanding of how PSI works under certain conditions and how it affected the travel distance of a baseball.

Poster Number: 25

Presenter: Lauren Kuck

Title: **Oil Spills- Cleaning Up Wildlife**

Every year wildlife is affected by oil spills. What detergent would work best for cleaning out oil from duck feathers? This project is about which detergent would work best to clean oil off duck feathers. Duck feathers were covered in oil and then washed with Joy, Palmolive, or Dawn and the amount of oil left on the feather was measured. My hypothesis was if put gear oil on duck feathers and clean them using a variety of treatments then the Dawn will clean the feathers the best because Dawn is famous for saving lives of animals that have been in oil and it is a detergent that cuts grease. The experimental results supported my hypothesis because Dawn was the best then Joy then Palmolive at removing oil. The results also showed that any soap wash is better than just a water wash, without soap.

Poster Number: 26

Presenter: Carter Unrast

Title: **The Effect of the Blades on a Wind Turbine**

People are always trying to use a clean type of energy so they turn to wind turbines. Are the blades on the turbine converting the most wind energy? This project looks at which blade transfers the most air and spins the wheel the fastest creating the most energy by measuring it in amps (dependent variable) and the greater the amount of amps tells use which type of blade (independent variable) converts the most energy. My hypothesis was that the flat blade will spin the fastest creating the most energy. The experimental results did not support my hypothesis by showing that the cups spun the fastest by converting the most energy.

Poster Number: 27

Presenter: Jack Knapke

Title: **Soybean Germination**

Farmers are always using new pesticides. Most pesticides contain hydrogen peroxide. Although they are effective for bugs, what amount of peroxide is the best for your beans, and how are soybeans affected by hydrogen peroxide. This experiment is to find out how a solution of hydrogen peroxide and tap water effects bean seeds. For my experiment I performed a rag doll test. I put 10 soybean seeds in different concentrations of hydrogen peroxide water and measured the root length after 15 days. My hypothesis says that the bag with the least amount of H₂O₂ will grow the longest roots. My results supported my hypothesis because the bag with just water did the best and the next best was the bag with the least amount of hydrogen peroxide. The bag with the most hydrogen peroxide did the worst.

Poster Number: 28

Presenter: Brandt Homan

Title: **Feeding Earthworms; How Their Diet Affects the Soil**

Had you ever wondered why you would have a composter and put your food scraps in it? Well that is why I made my experiment. The idea of my experiment was to determine how red wigglers' diet affected the nutrients in the soil. My experiment was to feed earthworms different diets like eggshells, banana peels, and corn fodder. The control variable in my experiment was the dirt I used, the initial amount of the worms in each pot, the pots I used, and the amount of water per pot. The independent variable is the food that I am feeding the worms. The dependent variable is how the soil changed from the beginning to the end from the worm's castings. I predicted that the banana pot would increase the potassium, phosphorus and nitrogen the most.

Poster Number: 29

Presenters: Landon Arling and Aiden Grieshop

Title: **Making Marvelous Maple Candy**

Have you ever wondered what might happen to maple syrup if you heated it? The purpose of our experiment is to find the best possible temperature to heat maple syrup to make a desirable candy. Our experiment investigates what effects different temperatures have on pure maple syrup in the creation of candies. The independent variable in our experiment is the temperatures at which we heated the maple syrup. The dependent variables is the texture, taste, smell, transparency, color, and overall taste of the maple syrup candy after we heat it. We then tested which candy was preferred for those dependent characteristics. Our hypothesis was that the candy heated to 255-260°F, candy C, would be the most preferred. The results of our experiment did not support our hypothesis because we predicted that candy C would be most preferred but, candy B, 245-was most preferred in color, taste, smell, transparency, and overall taste. It was only not preferred in texture.

Poster Number: 30

Presenters: Dayne Pohlmann and Wes Schoen

Title: **Does the Air Pressure of a Ball Affect the Bounce?**

Professional basketball players always use a basketball with the same air pressure, but does air pressure of a ball really affect the bounce? This project looks to see if air pressure of a ball affects the bounce. Our hypothesis is that the ball with the highest psi will bounce the highest. The experiment results showed that the higher the psi, the higher the bounce and it is direct correlation.

Poster Number: 31

Presenter: Camryn Swain

Title: **What Makes Ice Melt the Most?**

Have you ever asked yourself how road workers decide which salt to use on the highways? Most of the time they use road salt. Is there another faster way to make the ice melt? This experiment researched which substance makes ice melt the most quickly. If I put table salt, road salt, and sugar into ice cubes then table salt will make it melt the ice cube in the shortest amount of time. The purpose of this experiment is to investigate ways to make the roads safer for the buses and cars that drive along them.

Poster Number: 32

Presenter: John Kramer

Title: **Making the Stickiest Slime**

Have you ever wondered how to make your slime stickier? This project looks at if different proportions of borax affect how much stickiness there is in slime. The slime was placed on marker boards with press and seal. After five minutes of waiting, the boards were flipped over to measure how long they stuck to the board. (Dependent Variable.) In order to determine if the borax influences the stickiness factor of the slime many different measurements of borax were tested. (Independent variable.) My hypothesis was the more glue that was used would cause the slime to be stickier. The experiment results did not support this hypothesis and showed that more borax causes the slime to fall slower. This experiment allowed me to trial and error the proportions of borax and glue to make sticky slime.

Poster Number: 33

Presenter: Audrey Winner

Title: **Preferences of Browning Prevention Fruit Treatments**

You've been to a party or an event and the host puts some kind of cut fruit out on a platter. How does she prevent the fruit from browning? She has heard of different treatments that can prevent browning, but she does not know which one will be the most preferred at the party? This project looks at the preferences of solutions applied to cut apples. If I put apple slices each in lemon juice, apple cider, orange juice, and Sprite then the lemon juice will be the most visually appealing because lemon juice has the lowest pH that will stop the apple from turning brown. The Sprite will be most preferred apple because lots of people like soda and sweets. My experiment supported my hypothesis because I said that the lemon juice would prevent browning the best and it did. The average appearance rating for lemon juice was the highest rating for all of the substances. The average taste rating for apples treated with orange juice was the most preferred.

Poster Number: 34

Presenter: Ally Mescher

Title: **A Battery That Makes Cents**

Have you ever wanted to make your own battery that actually works, with voltage and charge? This project is about creating and measuring the voltage of a coin battery. It measures the voltage from a twelve coin battery, a ten coin battery, and eight coin battery, a six coin battery, a four coin battery, and a two coin battery (independent variable). I measured the voltage with a multimeter (dependent variable). My hypothesis was, if I change the amount of coins before making each battery, then I will receive a different amount of voltage from each battery, because every time there is a lower in the amount of coins, there will be less voltage coming out of the battery. My experiment supported my answer because each time I took away two coins, the voltage on the multimeter went down a little bit.

Poster Number: 35

Presenter: Jacob Smith

Title: **Distances with Gauss Rifles**

Magnets are being used today by a variety of companies. Even NASA is using neo neodymium magnets for the construction of one of its latest rockets. This experiment looks to see if the amount of neodymium magnets in a gauss rifle will affect the distance the ball traveled. The amount of magnets were tested 20 times each time first one magnet, second 2 magnets, third 3 magnets, and lastly 4 magnets. The amount of magnets were my independent variable. The amount of distance the magnet traveled was the dependent variable. The hypothesis for this experiment predicted that if more magnets were added that the distance would decrease. The experiment results were not supported because the ball did not travel as far when more magnets were added. This shows that when more magnets are added to the project the force of the magnets pulling the balls back increases.

Poster Number: 36

Presenter: Isaac Griesdorn

Title: **Cheese Mold Prevention Methods**

Every year Americans throw out 40% of the food they have every year. If that number was reduced by just 15% it would be able to feed 25 million people. Have you ever had to keep cheese from molding for the longest time possible? This purpose of my experiment is to find the best way to prevent cheese from molding for the longest amount of time. My experiment investigates how different kind of wraps prevent mold on cheese during a three week period. The wraps used are cheesecloth, aluminum foil, and cheese paper. The independent variable is the wrap that is on the cheese and the dependent variable is the amount of mold each piece of cheese grows.

Poster Number: 37

Presenter: Clara Barlage

Title: **Fins Affect Flight**

Have you ever made a film canister rocket with construction paper and film canisters? Did you think about the best shaped fin to use? Did you wonder about how the shape of a fin affects aerodynamics? This project looks into which fin shape will work the best on a film canister rocket and make it fly straighter and higher. Also, it will prove which fin is the most aerodynamic and the best at balancing the center of mass on film canister rockets. My hypothesis was that the parallelogram fin would work the best because it is slightly more aerodynamic than the other simpler fins. I tested a rectangular fin, a triangular fin, and a parallelogram fin by videotaping each flight and using a tape system marked by every foot to find my height and recorded my data. Then I calculated the averages of each fin shape. My experiment did not support my hypothesis because I thought that the parallelogram fin was going to work the best but the triangular fin ended up being the best when I calculated the averages of each fin shape.