

**Category:** Behavioral & Social Science

**Table Number:** H0202

**Student Name:** Rebecca Bade

**Team Members (if any):**

**Project Title:**

**Abstract:** I am fascinated with social sciences and chose to conduct a science fair experiment based on a question I formed through researching human behaviors. My question was this: how do different expectations alter abilities and opinions? I hypothesized that different expectations would have a large impact on abilities and opinions. I created two tests to answer my question. I gave these tests to elementary school teachers who gave them to their students. The first test was a test of ability; it consisted of two math quizzes that were the same level of difficulty. I asked the teachers to tell their classes that the first quiz was very easy while the second quiz was extremely difficult. This test was to prove whether or not abilities would change based on different levels of expectations. My second test was a test of opinion. I gave the same teachers a simple poem and rating sheets numbered from one to ten. The teachers read two of their classes the poem and asked them to rate it to illustrate their opinion. The teachers expected their first class to like it and their other to hate it. This test was to prove whether or not opinions change based on different levels of expectations. After I gathered all of my data and finalized all of my research I reached my conclusion. Different levels of expectations do not alter abilities but they do alter opinions.

**Category:** Behavioral & Social Science

**Table Number:** H0203

**Student Name:** Kayla Bowman

**Team Members (if any):**

**Project Title:** Can You Get Away with It?

**Abstract:** My question is "How often are handicap spaces and handicap passes misused." I wanted to know how many people really would park in a handicap reserved parking space without a pass. I also was curious to see what percentage of drivers using the pass had no visible handicap. This leaves the possibility that the pass is not theirs. I will base my thesis on those who park without a pass because I can not be the judge of whether someone needs the handicap pass or not."

**Category:** Behavioral & Social Science**Table Number:** H0204**Student Name:** Stephanie Hale**Team Members (if any):****Project Title:** The Twilight Zone

**Abstract:** Stephanie Hale The Twilight Zone Me and my brother were diagnosed with Irlen's Syndrome which is a visual perceptual disorder making it difficult to read because we are light sensitive. To correct this we use different colored paper to read on to lessen the intense of light. My question was: Will the color of paper or the color of lights effect the speed and accuracy of reading in 9-10 year olds without Irelens Syndrome? I tested this by taking ten kids, five girls and five boys. I had them each read five different paragraphs on different colored paper. I timed how long it took them to read each paragraph, and kept track of how many mistakes they made. I then repeated the experiment, changing the paragraphs and the colored paper to colored lights. After testing the participants, I added seconds to their time for each mistake they made. I counted the syllables in each paragraph and divided the overall time by the syllables. Giving me syllables per sec, and each kids overall reading score. My conclusion was: colored lights and colored paper did make a difference in speed and accuracy. Overall yellow was the best color to read with, everyone scored higher in either yellow light or yellow paper. My hypothesis was right, However I thought paper would be more beneficial than light but I believe my data shows that depends on the person.

**Category:** Behavioral & Social Science**Table Number:** H0205**Student Name:** Lindsey Hammon**Team Members (if any):****Project Title:** The Effect Of High Frequency Sound On Mouse Memory

**Abstract:** What is the effect of high frequency sound on mouse memory? I think it has a fairly significant effect on them. To test this, I separated eight mice into three groups, one group had no sound playing, the second had a high frequency sound playing and the third had a middle c playing constantly. I did several runs and averaged each mouse and then all the runs together to see which took the longest. The high frequency sound did slow them down and there was a difference in timing for the mice with a high frequency sound playing.

**Category:** Behavioral & Social Science**Table Number:** H0206**Student Name:** Zane Halvorsen**Team Members (if any):****Project Title:** Music- The Key to An A+

**Abstract:** My project examines the complexities of the human heart and brain. My desire is to discover if the average person runs faster and has a higher heart rate while listening to music. I began by identifying the needs of my project. I would need ten runners, a track to run them on a CD of Back in Black, and probably most importantly, heart rate monitors and a willing coach. I found all these things in various ways. First I went and spoke with Coach Lloyd who told me she would be happy to help me with this project. We set up two days to have students come after school and run in the gym. After this I went on a recruiting mission, selecting those of my friends whom I able to help me with this project. These students showed up right on schedule in the gym. Once assembled the students were debriefed on what would follow. They were told that they would run a quarter mile. Take a five minute break then run another full quarter mile. They were not told that on the second lap they would be listening to Back in Black on their second lap, for fear that they would try to rig the experiment. After the first run I was given several printouts of students heart rates and lap times. The second week followed similarly. After gathering all of this information I compiled it all into several charts I then glued these charts to my project as you see it now and this is what gave me my results.

**Category:** Behavioral & Social Science**Table Number:** H0208**Student Name:** Heather Johnson**Team Members (if any):****Project Title:** Right is to Geometry as Left is to Algebra

**Abstract:** My question was are right-brain dominant people more talented in the subject of geometry rather than algebra while left-brained dominant people perform better in the subject of algebra rather than geometry, as is common belief? I first formed my surveys. My hypothesis was that right-brain dominant people would perform better in the subject of geometry rather than algebra and vice versa for left-brain dominant people. The right/left brain tests were formed from two sources that backed up their results with scientific reasoning so I found them to be stable and to be pretty reliable. My math quiz was formed from the geometry and algebra books used in the Jordan School District. After obtaining the school counselor's signature, I made 30 copies for 30 people. I handed them all out to people from an age range of 12-41. After having them returned to me, I graded them and compared their age, gender, dominant brain side and their scores on the algebra and geometry test (I had one for the geometric part of the test and one for the algebraic part of the test). From the limited amount of information I had, on account of various problems, I concluded that it does not matter which brain side is dominant in a person. A person's performance in a certain type of math is dependent upon their own work and dedication or interest.

**Category:** Behavioral & Social Science**Table Number:** H0209**Student Name:** Mallory Latimer**Team Members (if any):****Project Title:** Color and Memory

**Abstract:** My question for my science fair project was to figure out if one color of paper helps you memorize better. I went about doing this project by choosing the colors I was going to test. I chose to use white, pastel blue, pastel pink, pastel yellow, dark green, and florescent pink colors of paper. I put eight high frequency words on each of the colors of paper. I then went into a second grade class of 21 students and had them look at one color for 30 seconds. I then took the paper away and gave them 45 seconds to write down all the words they could remember. Then I repeated the process with all of the colors of paper. My hypothesis was that the pastel yellow color would help the best, because it is the brightest color without being too bright. I didn't have a lot of variation in my results. The average amount of words they remembered correctly was between 4 and 5 words. The florescent and the pastel pink both had an average of 5 correct words, while the dark green had an average of 4 correct words. My hypothesis was not correct; pastel yellow had an average of 4.5 words correct. With my results I did not find one color that helps you memorize better than the other colors.

**Category:** Behavioral & Social Science**Table Number:** H0210**Student Name:** Michael Nixon**Team Members (if any):****Project Title:** The Effects of Weather on Latent Finger Prints

**Abstract:** My project studied the effects of weather on latent fingerprints. My question was which kind of weather would have the greatest affect on a print. My hypothesis was that heat would have the greatest affect on the print. To test this I took forty glass microscope slides and placed one right hand index finger print on each pausing between every five for two minutes. I then divided them into four groups of ten, one control group, one heat group, one cold group and one rain group. I then put the heat group in an oven for one hour at 200° Fahrenheit, I put the cold group in a freezer set at -10° Fahrenheit for one hour, I sprayed the rain group with water to simulate rain, and I put the control group in a covered pan and left them. After they had cooled down, warmed up or dried off respectively I dusted the fingerprints and looked for visible markers. If there was no discernable print it got a zero. If there was a discernable print with 1-3 visible markers it got a one. If there were 4-7 visible markers it got a two and if there were eight or more visible markers it got a 3. I then averaged the scores of the fingerprints in each group to find our which weather type was the most destructive. My conclusion was that my hypothesis was incorrect, water was the most damaging followed by cold and heat was actually the best.

**Category:** Behavioral & Social Science

**Table Number:** H0212

**Student Name:** Heather Reichert

**Team Members (if any):**

**Project Title:** Enhance or Inhibit

**Abstract:** Many people believe that singing is a subjective art. Therefore, for my experiment, I used the only measurable variable; range (the tones one can reach at full voice, without falsetto or head voice.) Through my research, everyone that I have talked to has had their firm opinion on certain substances. In general I heard that lemon juice, and a commercial spray enhance your range, and milk, and cold water build up mucus and tighten your vocal chords respectively, limiting your range. Since some of these claims, however were contradictory, I decided to test this for myself. To eliminate all other factors, I tested my substances in a different order every day, using my control, (luke warm water) in between each run through. This would extricate nerves, and the effect of the residue of the previously tested substance. As well as testing during lunch which eliminates the other factors of morning voice. During the testing itself, I had the human subject drink the measured substance, and then sing (on the Latin vowel A) up and down a chromatic scale. I continued this procedure with the remaining subjects everyday for one week. As a conclusion, since a major difference is lacking in the average ranges of the participants, then therefore, these substances neither enhance nor inhibit a vocal performance as a short term solution. There is still the possibility, however, that if you implement these substances into your regular diet, that it could have an overall difference on your voice.

**Category:** Behavioral & Social Science

**Table Number:** H0213

**Student Name:** Jeffrey Steiner

**Team Members (if any):**

**Project Title:** Does Musical Experience Effect Pitch Recall?

**Abstract:** Question: Do the years of musical experience effect the way a person can hear and recall a pitch? Hypothesis: I think that people who have more musical experience will have a better ability to hear and recall a pitch. Procedure: In this experiment, I will have 23 participants fill out a questionnaire stating their age and any musical experience. After filling out the questionnaire, I will play several different pitches. The way I will play these pitches is by using a chromatic tuner. After each pitch sound, I will have the participant sing to try to match the pitch. I will record if the pitch they sing matches, is sharp, or flat to the original pitch given. The tuner also displays what pitch the participant is singing. I will record their pitch on their questionnaire.

**Category:** Behavioral & Social Science

**Table Number:** H0214

**Student Name:** Catherine Witt

**Team Members (if any):**

**Project Title:** Measuring visual cues in Homo sapiens

**Abstract:** Have you ever wondered how people don't run in to you. (Well most of the time.) With that thought I formed my question. Do we give visual cues, when we choose the direction we are going to walk? From there I formed my hypothesis which is, if we use visual cues to look where we are going to walk then if I use visual cues to look the opposite way I walk then people will run into me. To test this I looked left and went left, looked left and went right, looked right and went right, looked right and went left. Then to throw off all visual cues I wore sunglasses and did the same procedure as before.

**Category:** Behavioral & Social Science

**Table Number:** H0215

**Student Name:** Joshua Hardy

**Team Members (if any):**

**Project Title:**

**Abstract:**

**Category:** Behavioral & Social Science

**Table Number:** H0216

**Student Name:** Alice Hinds

**Team Members (if any):**

**Project Title:**

**Abstract:**

**Category:** Behavioral & Social Science

**Table Number:** HT201

**Student Name:** Nicholas Carpenter

**Team Members (if any):** Joseph Farley, Jacob Dunn, Nicholas Carpenter

**Project Title:** Music and Memory

**Abstract:** Joseph Farley, our team leader, has already submitted this.

**Category:** Behavioral & Social Science

**Table Number:** HT201

**Student Name:** Jake Dunn

**Team Members (if any):** Nick Carpenter and Joe Farley

**Project Title:** Music And Memory

**Abstract:** Our question was: What genres of music will affect your short term memory. Our hypothesis was that if you listen to easy listening and classical then your memory recall will increase; however, if you listen to funk, country or hard rock, then your memory recall will decrease. We created a powerpoint which showed different colors appearing with music playing. The test subjects would then write down what they saw after the clip would end. We concluded that, although most people were not affected, easy listening and classical overall increased their memory recall. Also, we concluded that those who listened to funk, country, and hard rock had their memory recall decrease.

**Category:** Behavioral & Social Science

**Table Number:** HT201

**Student Name:** Joseph Farley

**Team Members (if any):** Nick Carpenter, Jake Dunn

**Project Title:** Music and Memory

**Abstract:** When coming up with an idea, we decided that we wanted to do something that we could apply to our everyday lives. So, we came up with the following question: "Do different types of music affect memory recall?" We then built a hypothesis off our question. It turned out to be: if you listen to classical

**Category:** Behavioral & Social Science

**Table Number:** HT207

**Student Name:** Elizabeth Leach

**Team Members (if any):** Elizabeth Leach and Tayelar Lloyd

**Project Title:** Does Your Handwriting Lie?

**Abstract:** While researching about graphology we learned how your handwriting can change with emotion, mood change, and many other things. That is where we decided to test if by looking at your handwriting we could tell if you were lying or telling the truth. After testing this we came up with our hypothesis that stated; By analyzing the size, slant and characteristic changes in a persons handwriting we will be able to tell which question was answered with a lie. When we knew our hypothesis we took willing participants and gathered handwriting and then later after having 108 participants we started analyzing the handwriting. When we were done we had a 90% accuracy with only having 9 wrong. So this was our conclusion; By analyzing size, slant and characteristic changes in a persons handwriting it IS possible to tell if they are lying.

**Category:** Behavioral & Social Science

**Table Number:** HT207

**Student Name:** Tayelar Lloyd

**Team Members (if any):** Tayelar Lloyd and Elizabeth Leach

**Project Title:** Does Your Handwriting Lie?

**Abstract:** While researching about graphology we learned how your handwriting can change with emotion, mood change, and many other things. That is where we decided to test if by looking at your handwriting we could tell if you were lying or telling the truth. After testing this we came up with our hypothesis that stated; By analyzing the size, slant, and characteristic changes in a persons handwriting we will be able to tell which questions was answered with a lie. When we knew our hypothesis we took willing participants and gathered handwriting and then later after having 108 participants we started analyzing the handwriting. When we were done we had a 90% accuracy with only having 9 wrong. So this was our conclusion; By analyzing size, slant, and characteristic changes in a persons handwriting it IS possible to tell if they are lying.

**Category:** Behavioral & Social Science

**Table Number:** HT211

**Student Name:** Kelsey Durrant

**Team Members (if any):** Jessie Lam

**Project Title:** He Said, She Said

**Abstract:** The purpose was to find out the accuracy between what females found attractive in males as in contrast with what males thought female preferences were (what females found attractive in males). This was also done with males. According to given research, accuracy between the perception of both will not be very high, however though, male accuracy will be higher than females. The process consisted of creating a survey that outlined 27 physical and emotional characteristics or traits and asking subjects to fill it out. The survey asked for the preference of the characteristics in the opposite gender. For example, long hair, short hair or medium hair. Then, they were asked to fill out the same survey, though based on their perception on what the opposite gender would say. The results consisted of a higher accuracy than the hypothesis called for. An estimated 80% accuracy between both surveys, with a higher accuracy in the males than females resulted in this experiment.

**Category:** Behavioral & Social Science

**Table Number:** HT211

**Student Name:** Jessie Lam

**Team Members (if any):** Kelsey Durrant

**Project Title:** He Said, She Said

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**Category:** Botany**Table Number:** H0102**Student Name:** Camille Payne**Team Members (if any):****Project Title:** The Effects of Iron Solutions on Plant Life

**Abstract:** My project began with a study about Geneva Steel's soil composition. Significant amounts of iron were found in the soil. My hypothesis was that the iron would create many problems for the plants around there, such as withering, discoloration, and stunted root growth. The plants that I used were Wisconsin Fast Plants, pinto bean plants, and grass seed. Each plant type had one control and one experimental. The experimental part was sprayed every other day with an iron solution. Observations were taken every few days. Discoloration, spotting, stunted growth, and other negative effects were shown. The next experiment I used was to test germination rates. Lettuce seeds were put into Petri dishes and covered in either distilled water or iron solution. The roots were measured in millimeters in the next few days. These root measurements were found to have an interesting pattern. In general, the iron-treated seeds had longer roots. The control seeds were less numerous in how many actually germinated. The results from the germination tests suggest that iron helps plants in the first stages of life. However, the same pattern was not seen after these first few days in a plant's life cycle. The growing plants had a harder time and more negative effects from the iron. So, although iron is good for the first part of life, it is not beneficial in the long run. Plants around Geneva Steel will have a hard time growing with the iron level that is present in the soil.

**Category:** Botany**Table Number:** H0103**Student Name:** Andrew Angerhofer**Team Members (if any):****Project Title:** The Effects of Light Pollution on Algae Growth

**Abstract:** With the growth of cities comes an increase in light pollution. Light pollution is defined as the adverse effect of artificial light. Could light pollution have an effect on algae growth? In this experiment, several algae samples were allowed to grow in different light settings. The different light settings simulated different amounts of light pollution. In the experiment half of the samples were given fertilizer, and half were left fertilizer-free to see if a constant growth rate could be established. My hypothesis was that light pollution would effect the growth of algae, and that the samples that got the most light would grow the most. The results of the experiment supported my hypothesis that light pollution does indeed effect the growth of algae, and that the samples that received the most light grew the best. I also found that there was a direct correlation between the amount of light received and the growth of the algae.

**Category:** Botany**Table Number:** H0104**Student Name:** Julianna Carter**Team Members (if any):****Project Title:** Picked Pears...Now What?

**Abstract:** The question that I tested in my experiment was What are the best conditions for ripening Bartlett pears? Conditions commonly mentioned in my research in suggested methods were temperature, ventilation, and ripening on the tree as apposed to off the tree, which were all conditions that I tested. I had four experiment groups and one control, with five pears in each group. I had one group in refrigeration for the entire experiment, one ventilated in room temperature for the whole experiment, one group that was refrigerated for two days before put in room temperature, and one group that was kept in a paper bag at room temperature. The control was left to ripen on the tree. I had also done research on ethylene, which is a gas released by ripening fruit that also aids in ripening the fruit further. Judging by this research I hypothesized that the group kept in a paper bag would yield the best results as the ethylene would be trapped. After eight days of taking pictures and making observations, I made a firmness scale, 1 being hard and 4 being soft and used a color scale from a ripening manual that I used as research, where 1 was full green and 4 was full yellow. Afterwards I made two line graphs for firmness and color and those groups that had differences in stages were averaged to insure accuracy. My data showed that both of the groups in room temperature, ventilation and not, ripened the quickest.

**Category:** Botany**Table Number:** H0105**Student Name:** Justin Taylor**Team Members (if any):****Project Title:** The Combined Effects of Naphthalene Acetic Acid and Glyphosate on Bindweed

**Abstract:** Question: Can we increase the effectiveness of Glyphosate's herbicidal effects on Bindweed by also treating the Bindweed with Naphthalene acetic acid (NAA), a plant hormone that stimulates root development? Hypothesis: The NAA will increase the Bindweeds circulation and help translocate the glyphosate deeper into the roots and Therefore more fully kill the Bindweed? Methods: Root segments of Bindweed were planted in pots and kept in a greenhouse for six weeks. Each pot was then sprayed with different concentrations of the plant hormone, Naphthalene acetic acid. one with 50 ppm, one with 25 ppm and one was left unsprayed as a control. After the Naphthalene solution dried all three plants were then sprayed with the Herbicide Glyphosate. Plants were then observed for the next few days. Results: the plants that were treated with NAA died slower and not as completely as the control but were slower to regrow new shoots. the control died quickly but immediately began to form new shoots. most of the new shoots on all three plants died eventually as well, leaving only a few shoots that grew back healthy. Overall the control seemed the to die the most effectively.

**Category:** Botany**Table Number:** HT101**Student Name:** Michael Porter**Team Members (if any):** Spencer McDonald, Kaitlin Wimmer**Project Title:** Osmotic Priming

**Abstract:** Osmotic Priming Authors: Michael Porter, Spencer McDonald, Kaitlin Wimmer Osmotic priming is the process used to decrease germination time and to help seeds germinate in adverse conditions. The purpose of this experiment is to determine if there is a difference between the use of different priming agents. Polyethylene glycol is a commonly used priming agent so we hypothesized that it would be the best agent to use. The other priming agents we used were glycerol, mannitol, and distilled water. The seeds were prepared by placing them in a 5% by mass solution for 24 hours while being aerated. The seeds were then dried for 24 hours and planted. The planting consisted of placing 5 seeds in a coffee filter, placing the filter in a plastic bag, watering, and sealing the bag. Water with varying amounts of salinity was used, starting with 2 g of salt per liter of water up to 20 g/L, in increments of 2 g of salt. Three bags were prepared for each seed, each priming agent, and each salinity of water. The number of germinated seeds was recorded each day for a week. Contrary to our hypothesis, pure water appeared to be the best priming agent to use. We believe water was the best only because the seeds were dried for 24 hours. The next phase of the experiment is to dry the seeds for longer amounts of time.

**Category:** Botany**Table Number:** HT101**Student Name:** Kaitlin Wimmer**Team Members (if any):** Mike Porter and Spencer McDonald**Project Title:** Osmotic Priming

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