CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Teagan J. Ampe

Project Number
J0701

Project Title
Does Time of Day Impact Students' Test Performance?

Abstract

Objectives/Goals
The objective of this experiment was to discover if time of day had an effect on performance of eighth graders on a multiplication test.

Methods/Materials
Two different tests with 40 one digit-by-three-digit multiplication problems were designed for this experiment. Both tests had the same questions in a different order: one was used for morning testing; the other was used for afternoon testing. On the front of the test were self-assessment questions on the student's level of fatigue and preferred time of day for optimal test performance. The tests were then administered to about 175 students in five separate classes, once in the morning and once in the afternoon. Students were given four minutes (on a digital timer) to complete as many questions as possible. The tests were graded, and the data was entered into spreadsheets electronically. Each student's individual score in the morning and afternoon was compared, and analysis was performed on all the students as a cohort.

Results
Sixty percent of students performed best in the morning, 31% performed best in the afternoon and 9% performed equally well at both times of day. Students on average performed 12.5% better in the morning than in the afternoon. Using the self-assessment questions to analyze the data, neither the students' level of fatigue nor their preferred testing time of day seemed to impact the results.

Conclusions/Discussion
Previous research has concluded that students generally performed better in the afternoon or that time of day had no impact on performance. The results of this project are unique because they have shown that students perform better in the morning. This experiment suggests that teachers should test middle school students in the morning and that the STAR tests should be administered in the morning.

Summary Statement
This experiment tested eighth grade students with multiplication tests to discover whether time of day affected the students' performance.

Help Received
Mrs.Gillum helped me through this project; Mrs.Rick reviewed my math test; my parents taught me how use Excel to do data analysis and graphing and proofread my work; and Mr.Honda, Mr.Rick and Mrs.Gillum allowed me to test their classes.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Madalyn E. Berry

Project Number
J0702

Project Title
At What Grade Level Can Children Distinguish between Candy and Non-Candy Items

Abstract

Objectives/Goals
My project goal was to determine at what grade level children could distinguish between candy and non-candy items. I believe that by the fourth grade, children will be able to distinguish between candy and non-candy items with a ninety percent success rate.

Methods/Materials
A four by two grid was prepared on a piece of tagboard paper. Into each box was glued an item that was candy or non-candy. The following candy and non-candy items were used: Tide detergent pod, Mike & Ike candy, Chewy Spree candy, One-A-Day Women's muti-vitamin, Sudafed pill, Tums antacid, Skittles candy, and an Advil Liquid gel capsule. Once items were placed, a record sheet was prepared, and finally the testing bagan. Ten randomly selected children, five boys and five girls, were asked if each item was candy or not candy. The results were then tabulated. A total of 90 children were tested, ten randomly selected, five boys and five girls, from each grade level K - 8.

Results
None of the grade levels attained a ninety percent accuracy rate. The highest accuracy rate was grade 6, with an accuracy rate of eighty-eight percent. The lowest accuracy rate was kindergarten, with an accuracy rate of sixty-five percent.
In addition, 45 of 90 students tested thought that a Tums antacid tablet was candy, and only two students out of 90 thought the muti-vitamin was candy.

Conclusions/Discussion
My conclusion is that children in grades K - 8 have a difficult time distinguishing between candy and non-candy items. My hypothesis was proven incorrect because none of the grade levels tested achieved a ninety percent accuracy rate of identification. My data suggests that parents should keep all medicines away from children at all times because they have difficulty differentiating between candy and medicines. My results also suggest that manufacturers of medicines need to be aware that their medicines are being mistaken for candy, and they need to manufacture items that do not resemble candy.

Summary Statement
Can children in grades K - 8 tell the difference between candy and medicines.

Help Received
Dad helped me type my reports and put items on display board.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)

Lolei Brenot; Nicolle Hoonsbeen

Project Number

J0703

Project Title

Monolingual vs. Multilingual

Abstract

Objectives/Goals

The objective of this project is to find out whether a person who speaks more than one language can learn another language more easily than someone who only speaks one language. Our hypothesis is that multi-linguals can learn new languages more easily than monolinguals because when people know two or more languages, their brain adapts to learning new languages more easily as they have had more exposure to languages and to different learning methods.

Methods/Materials

We tested subjects on written, audio and oral tests we wrote then collected the test data and averaged the scores.

Multilingual test subjects and monolingual test subjects ranging from 11 to 14 years of age; written, audio, and oral test created by us on pictorial based languages and Latin based languages; computer for audio portion of the test and data entry and analysis.

Results

After averaging out all test scores, multi-linguals and monolinguals had the exact same score average in nearly every category. The average test scores were as follows: written portion of test- 11/15, audio portion of test- 13/15, oral portion of test- 12/15. The overall scores were not identical, however, they were extremely close. The monolinguals overall average score was 35/45 and the multi-linguals overall average score was 36/45.

Conclusions/Discussion

In conclusion, our hypothesis was incorrect. After averaging out all test scores in each category, we discovered that both our monolingual and multilingual test subjects had the exact same overall score average after being rounded to the nearest number in almost every category. The only exception to this were the overall scores, which were one point different after being rounded and were slightly more than three tenths points different. After conducting our tests, we have also come to the conclusion that even if a person is fluent in a second language, it does not affect the speed of their learning another language. Some people, both monolingual and multilingual, do learn new languages more quickly than others, however this appears to be due to their learning skills, study techniques, and overall language aptitude.

Summary Statement

A study of how monolinguals and multi-linguals learn languages.

Help Received

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Priya Chaganti; Meena Gudapati

Project Number
J0704

Project Title
Does Heart Rate Affect Memory?

Abstract

Objectives/Goals
Our objective was to find out if and how the heart rate of an athlete affected memory.

Methods/Materials
For our experiment, we designed three tests to observe the effects of increased heart rate levels on memory. For each test we created two sets of seven made up words. The words in the second set were rearranged versions of words in the first set. We used the girls on our soccer team as our test subjects. Before practice, we measured the heart rate of each player by taking their pulse for 15 seconds, and gave them the first list of words. We gave the athletes one minute to study the words, and after another minute, we told them to write down the all the words that they could remember. After this test, we let the girls practice soccer for one hour before repeating the memory test again, this time with the other set of words. We did these tests on two other days to collect the amount of data that we needed.

Results
The following percent of athletes had improved memory scores: 60% in Trial 1, 40% in Trial 2, and 80% in Trial 3. The following percent of athletes had the same memory scores: 20% in Trial 1, 40% in Trial 2, and 20% in Trial 3. The following percent of athletes had lower memory scores: 20% in Trial 1, 20% in Trial 2, and 0% in Trial 3. The majority of the athletes had improved memory scores after exercising and having a higher heart rate.

Conclusions/Discussion
Our science research experiment shows that an average athlete can remember more after exercising than before. When the heart rate increases, oxygen rich blood flows to the hippocampus (the part of the brain related to spatial memory), causing the memory level to increase. This helped the athlete do better on our memory test which lets us conclude that a higher heart rate can improve an athlete's memory. Therefore, our hypothesis that the athletes would remember less after exercise, when their heart rate is higher was incorrect.

Summary Statement
Our project is about finding out how an increase in an athlete's heart rate could affect memory.

Help Received
Our parents helped conduct the memory test and purchase materials, Our soccer team members participated as test subjects.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Rishi Chandiramani

Project Number
J0705

Project Title
Do People Question Information Sources?

Abstract

Objectives/Goals
My objective was to see if 6th graders can be misled by giving them false information.

Methods/Materials
Materials:
- Paragraph with false information about volcanoes.
- Paragraph with true information about volcanoes.
- Quiz on both paragraphs

We had just studied volcanoes in Science, so the correct information should have been fresh in their minds.

Methods:
For my project I tested 28 sixth grade students. For 16 of the sixth graders I:
- Made them read a paragraph with false information on volcanoes.
- Asked for their age.
- I gave them a quiz on the paragraph.
- Corrected their quizes and record their scores.

The other 12 sixth graders were my control group. The control group was given a paragraph with true information. Everything else was the same except for the paragraph they read.

Results
The control group did 37% better than the sixth graders who read the paragraph with the false information. The control group got an average of 4.36 out of 5. The sixth graders with the paragraph with false information got an average of 3.16 out of 5. All the people I tested were either 11 or 12 years old. In my control group the 11 year olds did better than the 12 year olds. For the kids who had the paragraph with false information, the 12 years old did better than 11 year olds. The difference there is not significant so there isn#t an advantage to the 11 or 12 year olds.

Conclusions/Discussion
The sixth graders were misled by the false information that I gave them. The test group assumed that this false information was true. My little passage changed what they had thought about volcanoes. So people tend to believe what is told to them. Maybe next time I could get people of different ages, more people, giving them false information in a short movie or commercial. I would like to see if people are more likely to believe a video, audio, or something you read.

Summary Statement
My project tests to see if kids can be easily misled by giving them false information.

Help Received
Father helped with initial idea for the project.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Anika M. Hayes

Project Number
J0706

Project Title
Words vs. Shapes: What Does a Child See First?

Abstract

Objectives/Goals
My objective is to determine what a child sees first, a word or a shape and if age affects this.

Methods/Materials
Consent forms were gathered from 51 children. Six flash cards, each with one word and one shape, a research notebook and a chart to record my results. I tested one child at a time. I explained to each child that I would show one card and they would tell me what they saw first. I would then record the data and repeat for the remaining 5 cards.

Results
The children ages 5-8 yrs. old saw the shapes more frequently than the words. As the children's ages increased to 10 years old, the results showed that words were seen more frequently than shapes. At age 11, the children saw the shapes more frequently than words.
The results showed my hypothesis was correct however, not for the reasons I originally thought.

Conclusions/Discussion
I found through my research that our brains process the word and shape at the same time so there could be many reasons why the child said they saw the shape or word first. I came up with three main theories to explain my results. One theory is the placement of the word and shape on the card. The second theory is the child's reading level. The third theory is what activity the child had been previously engaged in before the test. If the child had been previously doing an activity that used the left brain, they may have first seen the word because the left brain deals with logic. If the child had been doing an activity using the right brain, they may first seen the shape because the right brain deals with creativity.

Summary Statement
My project is about what a child sees first, a word or a shape and how age affects this.

Help Received
My mother helped type the report and cut out my graphs. A student intern helped me understand and interpret my results.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Alana M. Hernandez

Project Number
J0707

Project Title
Is It a Pill or Candy?

Abstract

Objectives/Goals

I wanted to see if children, Kindergarten to grade three, can tell the difference between candy and over-the-counter medicine/pill. My goal was to get a sample of 150 students in grades Kindergaten to grade three and see if they can tell the difference. My hypothesis is that the majority of my sample will be able to tell the difference and obtain an 83% percent correct.

Methods/Materials

Materials - over-the-counter medication: antacid tablets/Tums, children gummy bear vitamins, night-time acetaminophen, ibuprofen/Motrin, nasal decongestant/Sudafed, Dayquil; candies: Sweet Tarts, Gummy Bears, licorice flavored candy, Tic-Tacs, Red Hots, red Mike and Ikes

My project involved putting six pairs of pills and candy that looked very similar on a color-coded poster board along with making answer sheets for students that was color-coded to allow for easy answering. I went to classes, ranging from Kindergarten to third grade, and had these students look at the poster board and answer on the answer sheets, which were the pills/candy.

Results

My results showed that the highest percent received from the entire sample of students was 66% or 4 out of 6 correct. This was 25% of the entire sample. My hopothesis of 83% correct was 17% of the sample. And, only 17% of the sample had 100% correct. My results showed that young children in grades Kindergarten to third grade DO mistake pills for candy.

Conclusions/Discussion

The results indicated that children cannot, with 100% accuracy, tell the difference between pills/over the counter medication and candy. My results showed that the majority of my sample only got 66% percent correct, which is dangerous since we are talking about medication that children "could be" ingesting.

It is a warning to parents that they must put medicine away in a safe place or lock them away. Also, pharmaceutical companies must continue to ensure safety and make all pills difficult to access and continue with the safety locks or protective seals, and or other methods. Pharmeceutical companies needs to make medication look bland and not make pills look so colorful like candy. Finally, parents must continually educate, teach and warn their children about the dangers of medicine looking like candy. There are many "mock" tests on-line, and books that parents can show their children.

Summary Statement

I wanted to see if children, Kindergarten to grade 3, can tell the difference between candy and over the counter medication/pills.

Help Received

My mother helped me get the materials, and helped me correct the tests and put the information together.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Rachel E. Herstik

Project Number
J0708

Project Title
The Cross Race Effect

Abstract

Objectives/Goals
The goal of my project was to determine the developmental age of the cross race effect. This effect is that people of one ethnicity have a harder time identifying people of another ethnicity.

Methods/Materials
I used google to do my research and find my pictures. I used photoshop to remove the eyes from my pictures. I used. Printer to print and them laminate. I also used Velcro. And to test the subjects I used middle school aged children.

Results
In my testing I found no clear cross race effect when testing middle school ages children. They were matching enlarged eyes to black and white faces. The most commonly recognized faces were the Hispanics with 43% white participants 22% black participants 57% Hispanic participants and 44% Asian participants matching both the male and female faces correctly.

Conclusions/Discussion
My hypothesis was that there would be an apparent cross race effect. My results did not support my hypothesis.

Summary Statement
I tested the development age of the cross race effect.

Help Received
My teacher edited my papers

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Meghana Khurana

Project Number
J0709

Project Title
Effect of Online Multitasking on Student Productivity: Study on Social Media's Effect on Student Reading Comprehension

Abstract

Objectives/Goals
How do online task interruptions affect productivity in a learning environment? Does gender, practice, aptitude or music affect efficiency of multitasking?

Methods/Materials
101 students took 2 reading comprehension tests on separate days: one without interruptions (single task) and one with multiple timed interruptions (multi-task). Tests were compiled using Power Point and administered through Promethean board. For Single Task, a passage was shown for 8 minutes followed by questions for 5 minutes. For Multi-task, 1 minute timed interruption slides were for shown every 2 minutes of the passage. Total Passage display time was 8 minutes for both tests followed by questions for 5 minutes. Answer sheets were collected and results for both tests were graded. Students filled survey sheets for data analysis. Avg. % decline in performance for each student and different groupings of students were computed using Excel and pivot tables.

Results
Overall, students lost 27.1% performance efficiency when multi-tasking. Girls avg. performance fell by 22.41% and boys had a decline of 31.37%. Students in advanced math class multitasked better by 23%. (Comparing 18.76% with 41.48%). Habitual multitaskers had a 31.83% avg. fall in performance. Non-multitaskers fell only 15.3%. Grade level math kids who learned music > 4 years fell by 46.03% compared to 26.7% for those with <= 4 years music. Students with grade level math & habitual multi-taskers & <5 years in music fell 52.64 % in performance when asked to multitask.

Conclusions/Discussion
Multitasking caused a considerable decline in efficiency and performance and had an adverse effect on productivity. Girls multitasked better than boys. Practice certainly did not make perfect as habitual multi-taskers performed worse when asked to multitask. Those with music experience were better able to focus when multitasking. Since the passage used here was considerably small, the effect of multitasking could be much worse on larger assignments.

Summary Statement
Effect of Online Multi-tasking (Facebook, Google, Messaging) on Students Work Productivity and how gender, practice, aptitude and music play a part

Help Received
Mother helped with Pivot tables and Excel spreadsheet.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Fiona P. Koval

Project Number
J0710

Project Title
Blind Navigation: Getting from Point A to Point B

Abstract

Objectives/Goals
The purpose of my project was to determine what type of audio cues would help a person navigate in the absence of visual reference points.

Methods/Materials
The materials used in the experiment included a large field, a 100' measuring tape, flag markers, a blindfold, a set of walkie-talkies, a whistle, and a smartphone with GPS application. Test subjects were blindfolded and asked to walk a straight path to a finish target directly in front of them at the opposite end of the field. During the tests, subjects heard (a) a sound generated at the end target (whistle blast every 5 seconds), (b) verbal instructions to correct to aid subjects in staying on course (i.e., left, right, slight left, slight right or on course every 5 seconds), or (c) no audio cues. Tests were considered complete if the subject was able to successfully reach the end zone of the course (the line at the end of the course parallel to the starting line), without straying out of bounds to either side of the course. Measurements were taken from the finish target to the point subjects crossed into the end zone, or went out of bounds.

Results
In 100% of the 15 sound generator tests, test subjects successfully crossed into the end zone. The average distance from the finish target in the sound generator tests was 4.3 ft. Subjects successfully completed 78.6%, or 11 of the 14 verbal instruction tests. The average distance from the finish target in the verbal tests was 59.7 ft. Of the 15 control tests (no audio cues), 33.3% were successfully completed. The average distance from the finish target in the control tests was 133.9 ft.

Conclusions/Discussion
Sound generated at a target end point and verbal instructions can be used to improve ability to navigate where visual cues are unavailable. Sound generator devices outfitted with GPS locators could be used as rescue equipment in areas of dense forests, allowing missing persons to aid in self-rescue by making their way to a sound generator and signaling for help. A smart phone application that uses verbal directions could be created to help blind people navigate when walking in urban areas.

Summary Statement
In this experiment, blindfolded test subjects successfully used audio cues to improve navigation toward a set target point.

Help Received
My parents drove me to the experiment site and helped in running the tests.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Carson A. Linxwiler

Project Number
J0711

Project Title
The Powers of Camouflage: The Effects of Colors on the Brain

Abstract

Objectives/Goals
With an ever-growing military, in which numerous causalities are reported annually, I set out to create an exceptionally more effective and cost-efficient camouflage by utilizing colors, and how they affect our perception of everyday occurrences.

Methods/Materials
Data was gathered from twenty-two seventh grade students who were asked to pick up as many M&M candies in nineteen seconds as they could. The M&M candies were randomly assorted into sets of five same-colored candies and were placed upon specific colored construction paper. Before a student could select an M&M candy off the paper, he or she was told to say any word in the English dictionary excluding colors, names, letters, or numbers. The colors for both the M&M candies and the construction papers included red, orange, yellow, green, blue, and brown.

Results
Contrasting with popular belief, the M&M candies placed upon a paper of the corresponding color background were not the hardest for the prying eyes to locate. In fact, in some cases they were the easiest to spot!

Conclusions/Discussion
A distinctive pattern arouse in each of my tests utilizing the color wheel. For instance, my first test used a background color of red, and by comparing it to the least commonly selected color of yellow, you will see that yellow is directly across and two colors to the left of red on the color wheel. This pattern occurred in every subsequent test. This new-found knowledge of color perception could allow our military to create a more effective camouflage.

Summary Statement
By investigating color perception and its effects on our brain, I conducted an experiment, in which I discovered that samples, when placed upon a background of the same color were not the most difficult to see.

Help Received
Mother helped glue my board; classmates became subjects for my experiment

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)

Autumn P. Luna

Project Number

J0712

Project Title

Finding the Correlation Between Impulsivity and a Student's GPA

Abstract

Objectives/Goals

A large population of students in the nation with impulsivity disorders are thought of to be less intelligent, or not as successful in academics- but, there is no proof of this widely believed statement. The purpose of this experiment was to test if impulsivity does in fact have an effect on a student's GPA or not. The predicted outcome of this experiment was that a student's impulsivity, would in fact affect a student's GPA, because of the inability to control the brain's first impulse to focus on a new subject or idea.

Methods/Materials

Impulsivities of the test subjects used in the experiment were determined by their results of the Stroop Test. Using certified Stroop Tests created by Stoelting Company, student test subjects were given a set of standardized instructions, and performed the three stages of the Stroop Test in the 45 second time limit for each stage. Their scores of completed words and colors, were recorded and calculated to find the T-Scores, with the help of the certified Stroop Test manual (Obtained by the APA). The T-Scores of Results were evaluated on the spectrum. The Interference Score- Color Score subtracted by Color-Word Score, was used with the student test subject's GPA to find a correlation using SPSS Software.

Results

There was a negative correlation between the student test subjects' GPAs and Interference scores, meaning that the higher the interference score, the lower the student's GPA. Sadly, the correlation of -148 was not of significance, because the number valuing significance was .245, but for a correlation to be relatively signifiant, the number must be less than 0.05. Therefore, even though the results did show a negative correlation (the lower the GPA, the higher the interference) with the two variables, there was no significance found, therefore, not supporting the hypothesis.

Conclusions/Discussion

The purpose of this experiment was to find a correlation between impulsivity and intelligence to see if one's impulsivity could affect their learning. There were no major findings after analyzing the data from the experiment, the correlation of the subjects' impulsivity and GPA was negative, but had minimal significance. Overall, though this experiment did not completely find the predicted results, it did give logical reasons for the data, and also discovered new and interesting data that may want to be further researched.

Summary Statement

The purpose of this experiment was to find a correlation between impulsivity and intelligence to see if one's impulsivity could affect their learning.

Help Received

My father (Qualified Scientist) advised me with performing the Stroop Test and let me use his data analysis software, SPSS. He also taught me about the executive function.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Ashkaan J. Mahjoob

Project Number
J0713

Project Title
Impact of Playing Video Games vs. Doodling on Tests

Abstract

Objectives/Goals
The objective of this experiment is to find out if playing video games vs. doodling has a negative impact on student test performance. My hypothesis was if students doodle rather than play video games prior to a test, then they will achieve higher test scores.

Methods/Materials
I used paper, pencils, iPads, a laptop and the Jetpack Joyride iPad App. I first obtained an informed consent from eighty # one sixth grade parents. Next, I designed three separate academic tests for the students, each with ten questions and similar formats. On the first day, the students doodled for fifteen minutes and then took a test which were then collected and graded. Video games were played on the second day, prior to the next test, which were then collected and graded. Finally, on the third day, the students were given the last test without any activity beforehand, which were again, collected and graded. This was the baseline test or control group. I then entered all the data into Microsoft Excel and analyzed them.

Results
The comparison of scores between testing after video and doodle with the baseline test when no prior activity was performed showed that 51% of all students improved their test scores after playing video games, while only 48% of all students improved their test scores after doodling; 28% did not show any change. Of these students, 42% of boys improved their scores after playing video games compare to 59% of the girls. The comparison of scores between testing after video play and testing after doodle showed that 43% of all students improved their test scores after playing video games, 25% did not show any change, while 32% of students did worse after playing the video game. 39% of boys improved their test scores after playing video, 28% did not show any change, while 33% of boys did poorly after playing video games. 46% of girls improved their test scored after playing video games, 23% did not show any change, while 31% did worse.

Conclusions/Discussion
From my experiment, it appears most sixth graders scored better on their academic tests after playing 15 minutes of video games than doodling and that doing an activity before a test is helpful and improves students# test scores. Girls seemed to focus and score better on their tests than boys. Overall my original hypothesis was incorrect and seems to favor playing video games over doodling prior to a test.

Summary Statement
It seems that consuming the mind with a fun activity before a test, such as doodling or video games, improves test scores, but, playing fifteen minutes of a fun, non # violent game brings up the test scores by a larger margin.

Help Received
My teacher provided me with class time in order to perform the experiments. I also had a initial meeting with Dr. Porche, a professional psychologist, to discuss my ideas on tests# design.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)

Aidan Meyer; Milo Weller

Project Number

J0714

Project Title

Constant Distraction: Effects of Texting on Reading Comprehension

Abstract

Objectives/Goals

Since texting came to the U.S. in 1996 it has grown rapidly. It has grown so much that the average teen sends over 3,000 texts a month. Many students text while doing homework. We wanted to find out how much of an impact it has on homework.

Methods/Materials

We tested 75 7th and 8th graders using a STAR reading comprehension test. 25 students were randomly selected for each group. The groups included: control, reply, and no-reply. Control had a phone but didn#t receive any texts, reply received and replied to the texts they got, and no-reply received texts but were not allowed to reply. The time it took for students to complete the test and their score were both recorded.

Results

The control group had a score of 3.64/5 and a time of 186.8 seconds. The reply group#s score was 15% lower (3.08/5) Also 53.7% slower (287.24 seconds). The no-reply group scored 11% lower (3.24/5) and were 21.9% slower (227.8 seconds) than the control.

Conclusions/Discussion

As expected the control group had the best at score and time. We were surprised when we discovered that no-reply and reply groups had similar effects on scores and times. This shows that just having a phone next to you impacts your score and time negatively. Students who want good grades and more free time should turn off and put away their phones, while doing homework. Our tests and results apply to everyone in the world with a phone and work that needs to get done. If you want to do better work in a shorter amount of time, put down your phone.

Summary Statement

Just receiving texts without replying is enough to lower scores by 11% and take 22% longer on a standardized reading comprehension test.

Help Received

Milo's dad helped with study design by asking us questions and Aidan's dad helped us with the board layout.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Kayla Miles; Carissa Navarrete

Project Number
J0715

Project Title
Exercise Your Brain

Abstract

Objectives/Goals
The purpose of this study was to test the theory that exercise does improve the ability for the brain to function. The hypothesis was that exercise before a memory test should improve focus, and result in higher memory scores.

Methods/Materials
Twenty subjects were selected. The age range of the subjects was 8 to 50 years old. Ten of the subjects were tested before and after exercise. The exercise group walked on a treadmill for ten minutes, at a moderate pace. Moderated pace was a brisk walk, without shortness of breath. The other ten subjects were tested two times, without exercise. The non-exercise group had at least a ten minute break between tests. This was our control group. All the subjects were tested with the memory game called,"Distraction." The memory game involved subjects remembering a sequence of numbers, while answering a series of non-related questions.

Results
The average improvement of memory scores for the exercise group was 4.2 points. The average improvement in the scores of the non-exercise group was 0.8. The exercise group not only had higher scores than the control group, it was also noted that the exercise subjects answered the questions quicker and easier.

Conclusions/Discussion
In conclusion, this study supports the hypothesis that exercise does improve memory and concentration. The results clearly demonstrate that exercise can have a positive effect on memory and alertness. All of the subjects that exercised had improved memory scores, as compared to the control group with minimal improvement. The variables that could have influenced outcomes include, subject's age, maturity, level of focus, pre-existing conditions or level of fitness. The results of this study demonstrate the connection between exercise and brain function. It is important to further understand the benefits of exercise, and educate people to incorporate exercise into their daily lives. This study proved that even a small amount of exercise can improve a person's memory and ability to focus.

Summary Statement
This study examined and tested the relationship between exercise and brain function.

Help Received
Mom helped with display board and editing.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Liam M. Scott-Curtis

Project Number
J0716

Project Title
Chessers, a Mind-Boggling Game: How Chunking, Interference, Entanglement and Negative Transfer Make a Mess of Things

Abstract

Objectives/Goals
The objective is to test my hypothesis that previous knowledge of chess interferes with a person's ability to play checkers with chess pieces.

Methods/Materials
Consent was gained from 60 middle school students, who were tested and placed in 3 groups based on previous knowledge of chess. 40 moves of chessers (checkers played with chess pieces) were played with each subject. After each move, subjects described how chess interfered with their strategy and decisions. Each test was recorded. Interference was rated using a scale of 0-2 (no, slight, or significant interference). Using transcripts, interference was classified as follows: due to movement of piece, value of piece, chess strategy, or general confusion.

Results
Group 3 (most experienced chess players) reported the highest levels of interference on the 0-2 scale and the highest degree of interference in each category, except in chess strategy. When subjects were categorized using a ratio of pieces taken to pieces lost, with < 1:4 being the least successful players and > or = to 1:1 being the most successful, 90% of Group 3 lost more pieces than were taken, with 60% of Group 3 losing pieces at rate of < 1:2. Groups 1 (least experienced chess player) and 2 (mid-level player) had relatively even distribution in each ratio. Players in the ratio of > or = 1:1, reported the highest levels on the scale of interference.

Conclusions/Discussion
My hypothesis was correct. Group 3 experienced the most interference playing chessers and reported the most negative transfer of learning from chess, resulting in a higher loss of pieces. However, in one category of interference, chess strategy, Group 3 showed less interference than Group 2, perhaps because previous knowledge of chess strategy created not only negative transfer of learning, but also, eventually, positive transfer of learning, especially of forward thinking, as this group may have created new strategies for chessers instead of only applying chess chunks (pattern recognition). Surprisingly, winners reported the most interference. Current chess-based research discusses how both chunking and forward-thinking are entangled in the process of mastering chess. In my experiment, chess chunking contributes to the negative transfer of learning in chessers for Group 3, but because of positive transfer of chess strategy (forward thinking), they eventually gained an advantage as they became acclimated to chessers.

Summary Statement
My experiment tested whether knowledge of chess interferes with a person's ability to recognize patterns and use strategy while playing checkers with chess pieces.

Help Received
Parents helped transcribe audio recordings and helped edit report and abstract. Parents purchased recording device. Mrs. Macy and other teachers gave me time with students for testing.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Molly M. Shine

Project Number
J0717

Project Title
Is It Real or Just an Illusion? The Effect of Age on Optical Ilusion Perception

Abstract

Objectives/Goals
The objective of this investigation was to learn if age affected optical illusion perception. The hypothesis was that the increase of age would make the optical illusion perception more acute, allowing the subjects to see and perceive more in the illusion than younger girls.

Methods/Materials
Ten different black-and-white optical illusions were placed in a shadow box. Thirty girls were tested: ten each from the third, fifth, and eighth grades. One by one, each student was brought into a separate room, shown the ten illusions, and asked what the subject saw in each. The answers were recorded on a data sheet.

Results
The results of the data collected showed that the eighth grade girls saw the whole illusion correctly more often that the third and fifth graders. However, the third grade girls had more complete answers than the fifth grade girls did.

Conclusions/Discussion
The results neither supported nor disproved the hypothesis. No patter was found to explain this, but the ages might provide a theory. The third graders still have very active imaginations helping them and the eighth graders have a cultural and academic advantage. the fifth graders are right in between these two stations in life.

Summary Statement
This project focused on how the perception of an illusion differs with age differences.

Help Received
Mother helped type board; Father helped edit board; Olivia Kohler helped rotate illusions and held box

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Nicole E. Veloskey

Project Number
J0718

Project Title
Correlation of Hand Dominance to Ear Dominance: Verbal Instruction Recall

Abstract

Objectives/Goals
About 70% of the population uses their right ear to listen to a phone call, which lead me to me topic. The purpose of this project was to determine which ear might better retain verbal instruction and if ear dominance is determined by hand dominance. I believed the dominant ear would be better at listening which would assist in better recall of information.

Methods/Materials
To conduct my experiments, I created a computer program to test which ear is better at basic memorization. The program played 10 different colors in a random order six times in either the left or right ear. In all, I performed 132 tests on 22 test subjects.

Results
After analyzing my test data, I found my hypothesis appeared to be supported. I found that the average correct score was 39.8% with the test subject's dominant ear and 34.8% averaged with the opposite eaer, which was a 5% out of 100% and a 12.5% relative difference between the two scores. I also tested whether one ear was better for active listening than the other. The test results were 37.1% for the left ear and 37.6% for the right ear, which implied that both ears are suitable for verbal instruction.

Conclusions/Discussion
I believe that my results supported my hypothesis in this experiment and showed that using the donminant ear may assist in greater potential for recall than using the nondominant ear in a memory task. However, I still recommend that more tests should be done on this topic to confirm the findings.

Summary Statement
The purpose of this project was to determine which ear might better retain verbal instruction and if ear dominance is determined by hand dominance.

Help Received
Father helped me come up with ideas for testing; Science teacher helped me with minor edits on report.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Shaoni C. White

Project Number
J0719

Project Title
The Relative Effectiveness of Three Memory Techniques

Abstract

Objectives/Goals
To determine which of three memory techniques, the loci method, rote memorization, and picture flash cards, is the most effective; and to determine if longer words are harder to memorize than shorter words.

Methods/Materials
Five subjects used the three memory techniques to memorize lists of twenty words. The first three lists had one-syllable words, the second three had two-syllable words, and the last three had three-syllable words.

Results
The loci method was the most effective memory technique, with picture flash cards the second most effective, and rote memorization the least effective. When the number of syllables increased, the percentage of words memorized consistently decreased.

Conclusions/Discussion
The loci method may have succeeded because it was tailored to the individual or because it connected the unfamiliar to the familiar. It could be used to study vocabulary, spelling, and anything that needs to be memorized in a specific sequence, and teachers and students should consider using it in the place of less effective techniques.

Summary Statement
This project studies the relative effectiveness of three memory techniques: rote memorization, picture flash cards, and the loci method, as well as the effect of increasing syllable length on the ease with which words are memorized.

Help Received
None, except advice from teacher and parents.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Riti Hegde

Project Number
J0796

Project Title
What Sense Is More Dominant: Taste or Smell?

Abstract

Objectives/Goals
My objective was to learn which sense is more dominant: taste or smell.

Methods/Materials
Informed consent was obtained from 20 people: ten of each gender. I had all test subjects participate in a private hall to do blindfolded taste tests. I would place a strong, fragrant food under their nose, to offset the aroma of what was placed in their mouth. The goal was to see if I could deceive the sense into thinking they tasted what was under their nose, rather than what was put into their mouth. If they could be deceived, smell was more dominant. If they couldn't be deceived, taste was more dominant.

Results
After testing. My results had shown me taste was the more dominant sense. 51/60 trials resulted in taste being the dominant sense. 86.7% of male trials resulted taste, the other 10% resulted in smell. 83.3% of female trials resulted in taste, while the other 16.7 % percent resulted in smell. As you can see, females had a better sense of smell than males.

Conclusions/Discussion
To conclude, taste was dominant over sense. My project demonstrated that contrary to popular belief, is not entirely dependent on smell. When the test subjects are given a smell to offset that of what they actually tasted, it will not affect their ability to determine what they are eating. This project's contributed knowledge to the field of neurology(how the brain and senses work).

Summary Statement
My project demonstrates knowledge about how the brain processes the senses and how taste and smell are related to each other.

Help Received
My mom helped me with the board; My science teacher set up test dates at lunch; I tested my experiment on all the volunteers

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)

Mary C. Monaghan

Project Number

J0797

Project Title

Children's Clay Sculpture: A Study of the Influences and Relationships with Human Figure Drawing

Abstract

Objectives/Goals

This project's purpose was to determine if clay sculpture can influence, or have an effect on children's human figure drawings. In addition, similarities and differences between two and three dimensional work were observed.

Methods/Materials

One-hundred nine students ages three to eleven years were tested. Students were asked to draw a person from head to toe from memory (Drawing #1). Then students were asked to sculpt a human figure out of clay. Students were again asked to draw a human figure (Drawing #2). Students were given no directions on how to draw or sculpt. The drawings and sculptures were scored based on the presence or absence of 13 features: head, neck, hair, eyes, nose, mouth, ears, torso, arms, fist, fingers, legs and feet. Sculptures were noted if they were upright or horizontal and overall works were studied to see if any influences occurred from clay sculpting. Overall work was examined for presence of a schema or formula in both two and three-dimensional work.

Results

As students progressed in age, more features were shown in both drawings and clay sculpture. The features in the clay appeared at a slower rate due to inexperience with the medium. Students progressed through developmental stages in both clay and drawing. Of the students sculptures, 83% of the students built their sculptures horizontal as a bas relief form and often were shown to "draw" with the clay. Remaining 17% of sculptures were upright. When examining drawings and sculptures, 5% of the students were influenced from the clay. Most of the influences found from clay were mainly students realizing that arms and legs were not just lines, but have a form. Overall work was examined showing that 91% of the students had a schema or their own style present in both clay and drawing.

Conclusions/Discussion

If students were given instructions and/or had the opportunity to sculpt from observation, more influences would be shown in their final drawing. Students would know what parts of the human figure were needed and how to sculpt them successfully. Working with a three dimensional medium such as clay should be used more often in schools and can help with motor skills and brain development.

Summary Statement

This project studies the influences and relationships between clay sculpture and human figure drawing.

Help Received

Mother supervised classes that were tested and helped with display board.

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Courtney R. Heath

Project Number
J0798

Project Title
Re-Focus: Effects of Distracted Driving

Abstract

Objectives/Goals
To determine whether distractions affect a persons abillity to operate a motor vhicle.

Methods/Materials
Mterials- table,projector,froza motorsports 4 video game, xbox, steering wheel, gas/break pedal,flash cards (color coded), loading straps, test subjects cell phones, questionaires.
Mthod-I tested 30 test subjects at 7 test each to see the affects of distractions while operating a motor vehicle.

Results
When comparing the times and speeds of the undistracted test to the other distractions; in-vehicloe, talking on the phone, and texting, the numbers showed that texting while driving showed the biggest imparement of distractions. This is because it takes a portion of the three skills needed to operate a moror vehicle; cognitive, visual, and manual skills away to text.

Conclusions/Discussion
Divers who use their cell-phone or an in-vehicle distraction show a measurable level of imparements. while drivers showed that texting while driving was the biggest distraction on the road, all distractions show asignificant amount of a distracting level and should NOT be done while operating a motor vehicle.

Summary Statement
to test the abillity of a driver when operating a motor vehicle while losing a portion of their cognitive visual and manual skills needed to operate a vehicle through various distractions

Help Received
my dad helped edit essays, mom helped me complete board,and Mrs. Serrano helped edit my graphs and gave me a place to test

CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Esther Y. Choi

Project Number
J0799

Project Title
Does a Positive Mindset Affect One's Mental Speed or Accuracy Better Than a Negative Mindset?

Abstract

Objectives/Goals
With the creation of this project, I worked to find how the differences between a positive mindset and a negative mindset, using the variable of speed and accuracy. I wanted to explore a topic that not only affected me, but also could help or contribute to people and society.

Methods/Materials
To complete this experiment, I enlisted the helped of five subjects for each of the three groups, with prior permission. I also used a series of math tests, which were used to measure the accuracy of the subject, a stopwatch for timing each subject, a room where the subjects could be isolated, and a few pencils to complete the tests.
I tested three groups, a positive mindset group, a negative mindset group, and a control group. Each subject from each group completed a math test, under corresponding environments, whether it be a soothing or hostile surroundings. Each subject was timed and answers were reviewed to form results.

Results
In conclusion, I found that the positive mindset group had both a faster time and a greater amount of correct answers, individually and in average, when compared to the negative mindset group and the control group.

Conclusions/Discussion
In the end, I found the results to agree with my hypothesis that a positive mindset does in fact help one not only complete mental work faster, but also in a more accurate sense. If I were to complete this experiment again, I would try to again to control each human variable better, as each person is different, and use a larger sample size for more accurate results.

Summary Statement
With the purpose to create a question that contributed to others, I tested how a positive mindset and a negative mindset can alffect one's mental speed and accuracy.

Help Received