# 2016 WCCUSD SCIENCE FAIR WINNERS

# CATEGORIES

GRADE 6

GRADE 7

GRADE 12

BEHAVIORAL
BIOLOGICAL
MATH/COMPUTERS
PHYSICAL

# 6TH GRADE

I do think different flower of our services of feet the temperature of your moun your whole system and body temperature and programmer was sometimes and some some some your whole system and body temperature but, if you like spicy food, the spicer gum (circums) tooy set offect you as much.

#### Materials

- 1. Dentyne Reppermint Florened gun.
- 2. Dentyne Arctic Chill flovored gun
- 3. Dentyne Cirronon flowered gun.
- 4. Sour Potch Red Berry Florered gun
- 5. Thermometer
- 6. Timer

\*For each subject (volunteer):

1 Take Subject's "before" temporature

2. Have the subject chase a piece of

Respectation forward pain.

3. Have the subject some chaseing the

gas for 3 minutes or until the Suor

gas baked in.

4. Toke the subject's drive" and

4. Toke the subject's often.

1 temporature with the more than the form

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DO DIFFERENT FLAVORS OF GUM AFFECT YOUR BODY TEMPERATURE?



Question
Do different flavors of gum offect
the temperature of your mouth?







Subj	ect #4: A	dult Femi	ile
Wind of State	Transporters Transporters	Secretary Secretary	letterence
peppermint	96.4	97.4	+1.0
arctic chill	97.2	97.7	-0.5
cinnamon	97.4	97.7	+0.3
sour perch	96.9	97.7	+0.8

Sub	ject #5:	Adult Md	le
statut sum	200	-	lifferent .
peppermint	96.6	96.9	+0.3
arctic chill	97.1	96.1	-1.0
cinnomen	96.9	97.1	+0.2
pour patch	96.6	96.3	-0.3

	object W.	: Child	
and of part.	Total Samparatura Saction	5	Influence
peppermint	96.6	97.9	+1.3
arctic chill	97.4	97.4	0.0
cinnomon	97.7	97.9	+0.2
sour patch	96.9	96.1	+1.2

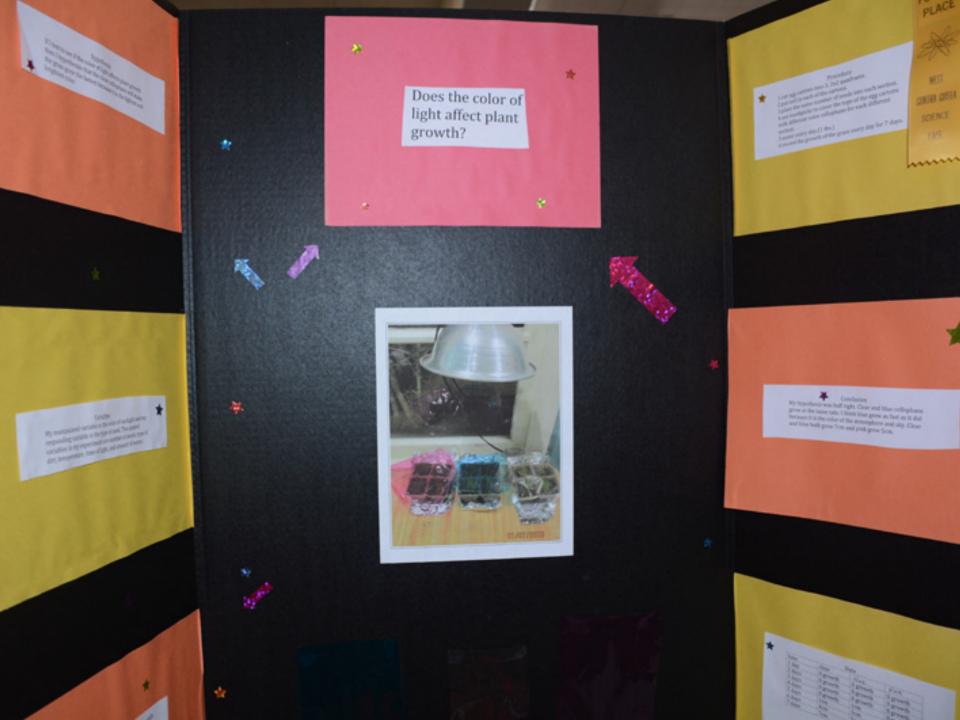
en rim	Tool Supposed States	Second Season of the	Different
peppermint	98.1	99.4	+1.3
arctic chill	97.2	98.4	+1.2
cinnomon	97.1	99.0	-1.9
pour perch	97.1	99.1	-2.0

	Subject #	13: Child	
and of their	3	-	Square.
peppermint	97.5	97.7	-0.2
arctic chill	97	98.8	+1.2
cinnomon	96.3	98.8	+2.8
sour patch	95.2	98	+2.8

Conclusion By done had prevent that my hyperhees and correct. The temperatures did change as a resu different flowers of gum, But, it w mer I had expected. I shought to sempretures were going to get colder on me mins, especially the arctic chill. But it actually par harter. Every single test get hatter except for three (two drapped and one stoyed the some). The overall gum flowers that showed the granest temperature change were the propermint and sour patch (surprising!). I elso reficed that, in general, there was a snaller change in temperature with edults than with kids.

Ma Theory

My theory cloud why the
temperatures get higher is that since you
are cheating, it's like you are exercising
one only the property of the sakes you seem to your mouth. It's
and rue.



## STATEMENT

My chosen topic is to discover how the speed of a rotar affects the amount of lit in as lic. belicopter.

## HYPOTHESIS

The amount of speed pursued will cause the rotor to spin fast enough to create thrust to generate enough lift. The faster the rater spins the higher the helicopur pres.

RESEARCH

## **MATERIALS**

Three AAA Subscore

Laure Photo Tuckersons

Tape Rosert





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first is prouded which

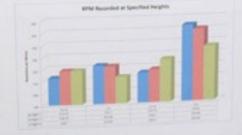
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how to keep it steady. I

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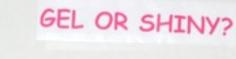
Life field at her more party (SE)

MANAMA



# PURPOSE Durpose of this experiment is not out if shiny nail polish last ger than gel nail polish. The eriment will show if one is the durable than the other.

## WHICH NAIL POLISH LAST LONGER:









nink the gel nail polish will last nger because I have used gel all polish and have found the sults to be better than the shiny all polish. Gel nail polish has a nuch thicker texture.















# 

MATERIALS 18 False Nails

18 False Ruser Fine sandpaper 3 bottles gel nail polish 3 bottles shiny nail polish 3 bottles shiny nail polish The same of the sa

Distinguishing

Heart New York (1907)

The Professional Annies (1907)

The Professional Annies and Professional Annies (1907)

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CONCLUSION

## I expect to find that a lighter copposet can take down Marie opposit organization between WARE TO REST THOU ADDRESS THE TATE THE INDEPENDENCE I WART TO BOOK IN AND WAS NOT AND

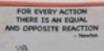
## Hypothesis:

A small, lightweight percer, can take a much larger and heavier person to the ground using a special business Su-josu technique.









## JIU-JITSU CITY The Double Leg Take Down

#### Procedures:

- point to test by hypothesis at the school which has made.
- in the growth day of the property and an requiremental group concerning of 2 people to the day believe on it could be baseling process (throws) may provided by profition the foliations and the experiences.
- 3. The control and experienced group were restricted to during a to their best parallel and in a stable and between provings.
- Brown man instruction to attempt to posit or portunal of the R. part or part stones are of the Aperiate in the control or representation grounds from the first man.
- Is these than concepted the proper to place beckening using the mark the right fact or friend and bull four backeral and treatment for body. Minut, the post too tell brace almost used right foot agrand there has gradient the automorphism I progite interest and drawn foregood and dumped the training partners he the last.







#### Materials:

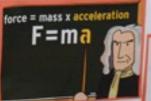
- 1.) A weight stale to determine the weights of your self-defense training
- 2.) A doju an martied area to custom the part when you take your training partners down is experied.
- 3.5 A correct would serve to take pictures in order to oppose fourage.
- 4.) A remitteek and pers to record findings.















## Observation & Results:

Break with real place to take driven any of the 4 to represent to purpoy of pulling on them, we desire the assets names from tell still failed to take from any of the 4 subjects. when their over the druble leg takedown, he took the both substitute the reprincental group to the ground. He displayed are open arrang in physical exerction when using the double ng salesteen in contract to pushing and pushing the subjects.

### Conclusion:

bong the double leg takedown and the push and pull memors showed that pushing or pulling someone to the ground and is bigger and heavier than you is almost imposible. On the other hand, executing the double log transform to take a bigger and heavier person to the ground is an effective bechnique. These results are buried by scenaric theory because the double leg takebar tanbines three sariables, leverage, represent, and force. This means my hypothesis was

> JIU-JITSU CITY The Power of The Double Leg Take Down



28.4 990



#### Sulperson

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Magnets dropped through a copper and oluminum pipe (th.d.f.e.c.e.g)

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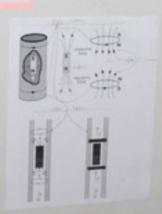
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Continues to the second territories for the second territories.





Research

# MATERIALS

## Cantaloupe Curing

Which Material Preserves Cantaloupe Best?

#### INTRODUCTION

This project exhibits the heat proservation of a seed science fixed, the conscious I will be using difference manneals, such as region and sail, to cover this drait, white gave no fits also was when our class heartest about finally in the constant of the deceased finally is constanted in the deceased. beside an continental dryft, I wondered 30 the foresteed sense has taken formed under shirty dryfty, Anders brings covered it indicates. The prompted net in wondering of different feetings had to have greatly somewhat per feeting like the not promote in which the final was boried. One appriment will show which per feet in the bory from their the longers, and which less the final days give this longers, and which less the final days give

I researched on the interior about how our preserved food first, believe the experiment. This remains product for its own propositions, it will be used to produce the experiment of the produce of the foreign about the product of the same often and the foreign product. This will keep longer with the product or cores bens. My more and my dual shelped and guided on the foreign country.

#### HYPOTHESIS

First two is no whether themselves, but a longer paint of support, and, or subsecuted under presenting heat. I dependent to the sait will work her dealer and the subsection of the sait to the said of the sait to the said of the said o

#### **PROCEDURE**

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- 1. Convey nearly time with one ray of fertimed substitutions, per hag.

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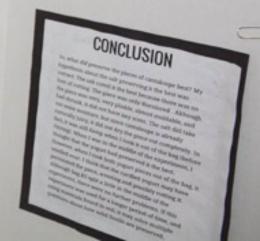


- Below, the separate









## 7TH GRADE

# BIOLOGICAL SCIENCE

## Question

Does stress affect body temperature?

## Hypothesis

I feel that having students take a meth test will provide a high level of Louis Exergence I became that is about to take a math text feels" namera, ward. turnfied and uprepared " So I think this will be a good requirement to us how atoese affects body temperature Ultree rades the dress of a most ted I presently feel a vise in my body temperature

## Materials

1. Dual Score Thermoneter
2. Subjects (20 for better 2. Poper (por recording)
2. Poper (proced)
3. Pedgar (plant)
3. Pedgar (plant) How Does

Stress

Effect

Body

Temperature?

## Budy Temperature Officiance Schools the Magnesing and Ending of the Math Total

## Future Project

You can get many nom ideas from this project. One very interesting project to do after this one would be to see who did mell on the test. You can see what different temperature ranges the different grades were in. This can show hom certain people's body temperature change during the test and how they did. It would be a great project to follow up

## Procedure

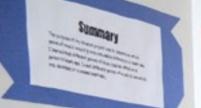
The plan is to go to two different much deces and take averybody's temperature before and after the text. We will be using a Dual Scan Temperature so that there is no physical contest. We will take the whole desses temperature before the test and record it on the sheet of paper. Students will began the test and continue leading for fifteen minutes. Once they been morking on the last for 12 minutes we will go around the whole class and take their temperature again. After me are done. me, will see if the stress of the test made the body temperature increased

## Results

Students body temperature either ment up stayed the same, on ment down I took an everyy for each of the three sategories. There was a total of wholy temperature is all so of the istinguishers must up o stayed the come, and so must down. The average vising temperature for the people that ment of man 0.3 Tokenhall. The carry for the temperatures that ment down new dec 0.7 Februskett. 9 dished body temperature dishe't shift for a man me such a small shift in toporture that I considered in the entrying of having and changed

## Conclusion

The forthering and many Only Commence of the Commence of th Advanta . How had the A CHEST



Does

Music



Heart

Rate?

### Question:

Do Different Types of Music Affect Heart Rate?

## Hypothesis

You delicate topic of most will often here and the deposition is the classical man will decrease the heart six red rep may will section for head case I producted to have dat least the proper for the case of least one



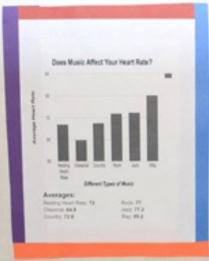
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#### Results:

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Ray had the road increase in heart rate. at 85.2. Sport, Rock and Jaco Sed the second most promise and were close together in hour case, at IT and TT-2 Read eat County at T2.6 and was close to the testing head tate at 70. Freely, Connector permanent from the resting from take at \$4.5.

#### Procedure

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- And, residence and a second of the setting of each company of the colonial residence and a setting of each company is company from a setting of the second of the couple of the colonial from principles of an end depart for the file.

#### Conclusion:

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HYPOTHESIS RESULTS QUESTION In which liquid do plants grow the best? Pypothesia: PLANT SESTETS: GROWTH! Procedure Procedure: CONCLUSION MATERIALS

## Question

If fixed falls on the ground for a limited amount of time, say five seconds, will a have the same amount of bacterial growth as if it were on the ground for 10 seconds or 1 minute 7

## MYTHBUSTER! S THE 5 SECOND RULE REAL

#### Hypothesis

Deline that look that fall or the point on Book or him private abuses is twinget in the point. Floorish in the DANIES TO Know the male COTAT with wherever "gree" fled our feet and all pose the same present, it sufraings to gate more or less balleris have the line speed on the ground, but by the missish and has made become promise price prod when the















#### Background Information









## Experimental Proced

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Top I have been president as the gas to the

#### Results

gree After William Real way my growth.

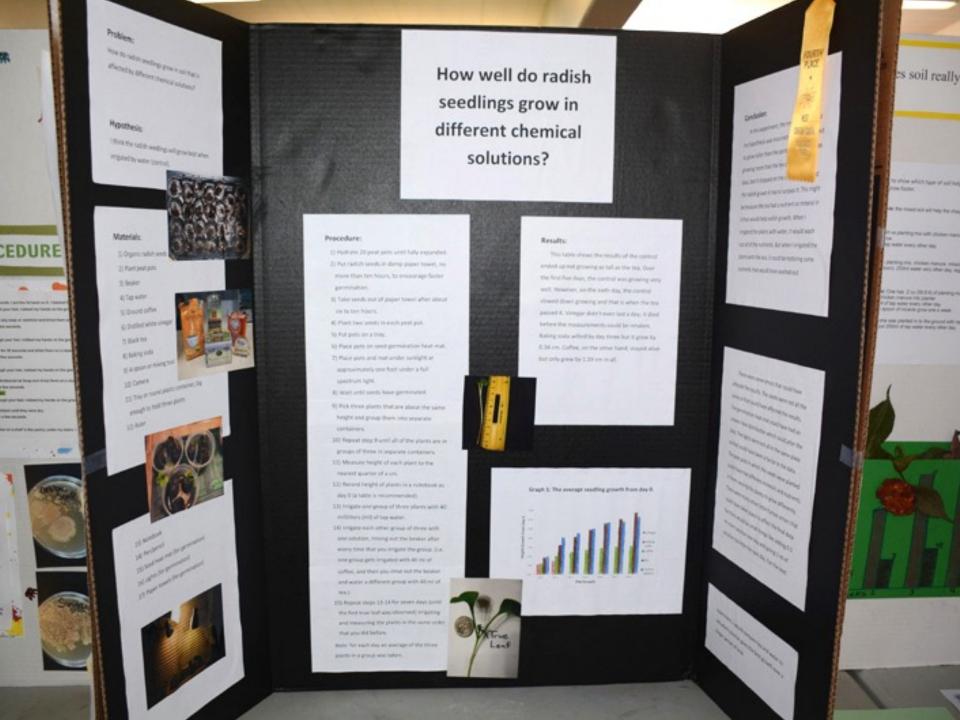
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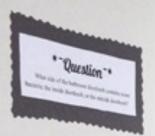
and any test \$1 shapes, and be see

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#### \* "Hypothesis"

## \* - Materials -\*

## **Bathroom**

## Doorknob

## Bacteria

## Growth

#### \* Photos \*



#### \* Extra Information -\*



#### \* yrapn \*

0=Nothing 1-1-5% 2:16:10% 3-11-25% 4-26-50%



Bacteria are single-celled. microscopic organisms that live in different places.

#### \* Results

which Finally, I developed a had to maily described.



#### \* Conclusion \*

## \*-Summary\*\*

## \* Acknowledgements \*\*

## 5 SECOND RULE: FACT OR FICTION?

Most people, reportally striates, how shout for f-Second Rule Some people, particularly more first that I you king look or the probables it is kny than people, worth data believe that I yes trop look in the graph it a self self-to self-yeaps to speciments ! stoods is the assessment of the log time. really take for hasterie's massler one taken book'ng this will I hope to determine whether the Viscoul Rain to a good qualities; or sale.

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THERD PLACE



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demients use fertilizer on their crops, notati of it is direct the plant it was interned for Ruintal works erfilizer into nearby sheams, and ace week hanco on environment. One of the main ingredents in many lores are nutrients called nitrates, which are often led as "safe" or "satural". Although interiors we not as case as ammonias and rotters, which are count in sme sees, nitrates are much more coercion. Tee high rimals in case stream fauth more coercion. Tee high rimals in case stream fauth more coercion. Tee high rimals in case stream fauth more of the satural sees of sold printing packets in histories in the water. Aligne as will solve plant people by absorbting all the ruillests in the water, and proving lamper, more permanent plants. Aligne call also four moral of shallow streams and channels, and were trip four moral of a shallow streams and channels, and were trip four moral of the call on whater it also prior production are quality plants. can use inhalted to all proor production are sugger production. What if we could channel the runth loss sugger production. What if we could channel the runth loss to other only one made goods. Each of season the season of the realter streams.

Question

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## **Can Aquatic Plants Remove**

## Fertilizer from water?





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## Question

#### Materials

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  20,000m;
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- \* rotated indpend (formula)
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## Hypotheses

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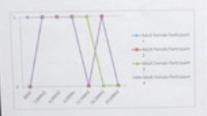
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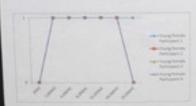
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## 7<sup>TH</sup> GRADE

# MATHEMATICS & COMPUTERS

## Science Fair Project

Materials: Grab three 8.5 x 11 sheets of paper.

Step 1: Using one paper start by writing multiplication.

Steps 2: Use the second piece of paper and start using the same multiplication problems and write them horizontally.

Step 3: Using the third piece of paper write the same problems vertically.

Step 4: Record the timing that you have gotten and make a conclusion on your hypothesis if you were correct or mistaken.

### HORIZONTAL PROBLEMS Horizontal Problems Hypothesis

of a person is timed on how fast he/she could do 100 multiplication problems heroportally, then it will be the fastest time or in 1° places and up to 1 or 2 minutes because our minds are set on this style of sechnique and

This will be tested on an average high schooler age: 16, In-5+20 x+12 xx 8 xx 4 xx 5 xx 7 xx 14 xx 55 5x 30 xx 1 MY 50分加度 10分加度 10分加度 10分割 1015 3075 4020 4027 301 402 405 408 40-25 30-35 and and sort sort makes on the law of 如何如此有如何如何如何如何可以可以不知识如此有如此以此以 如何如此有如何如何不知何如何不知识如此有如此以 NOT SO THE SOLD AND S

Horizontal Problems Conclusion So in conclusion when a proper is treed on how fast So in conclusion when a person of annual and 3 seconds helpful control and 3 seconds helpful con heliche can be tested done tall many and 3 seconds

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## MULTIPICATIONS STYLES

#### VERTICAL PROBLEMS

Vertical Problem Hypothesis

If a person is timed on how fast he/she can do 100 multiplication problems then the timing will be about 2 to 3 minutes because our minds are used to this style but. it is still hard for our brain to process the technique.

This will be tested on an average high schooler age 16. In a controlled environment.

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#### Vertical Problems Conclusion

So in all conclusion if a person is tested on how fast he/she can do 100 multiplication problems going vertically then their timing is 1 minute and 51 seconds with 100 percent accuracy. On my hypothesis I stated that it would take around 2 to 3 minutes for it to be completed. And the end result showed that my hypothesis was proven wrong given by the timing. So all together this sample was number one and swapped places with the horizontal problems in my hypothesis on which one will be 1" and 2"

#### Variables

Controlled variables. To provid grade it is opinion after project they file same threw out the agents the britishings.

Aman Amia

7th Grade

Endependent variable. To regenter unable to symmetris the director multiplication problem gr.

Dependant variable: Traignost wide us ny problem the I resided for the three different place

### DIAGONAL PROBLEMS

Diagonal Problems Hypothesis M

If a person is tested on how fast he/she can do 200 emultiplication problems degenery, then they will do it between 2 or 4 moutes. Because it is hard for our mind to arthurts to the new length or thele of the problems.

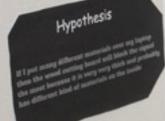
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Diagonal Problems Conclusion In conclusion of a person is timed on how test beyone can do 100 mutalización problem destat bajune can timing by mondre and 5 seconds and their their final timing by more process disposably then their states that their states and the states are states a accuracy. On my original seconds with 150 percent



ıa

What materials can be used to block a wifi signal?





WHAT MATERIALS CAN BLOCK A WIFI SIGNAL???

EMILIO VAZQUEZ Wi Period 6 wi

### RESEARCH

INFi is how we are able to stream a video or check an email.INFI stands for Wireless Fidelity it user radio frequencies to signal between devices. In 1999 the wifi alliance formed as a trade association to hold the wifi trademark. ( • • • •

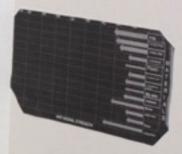
#### PROCEDURE

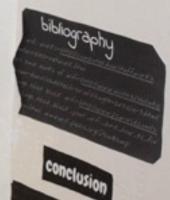
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#### CBSERVETTIONS

I noticed that the foil and the wooden cutting board disturbed the signal the most my hypothesis is correct.





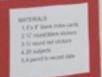


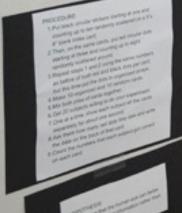




PROBLEM.
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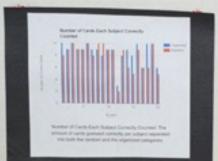
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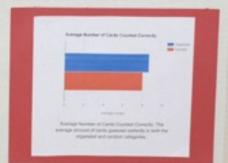
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# RANDOM

















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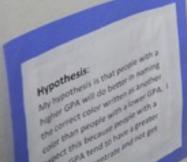
## 7<sup>TH</sup> GRADE

# BEHAVIORAL SCIENCE

arrough emetrics a demonstration of how a distraction interferes with your reaction time. Besically, the Stroop effect is interference. Reading is something people practice every day We become so good at it, we start reading things automatically. So when we ask people to name the color of the word instead of reading the word, the automatic reaction of reading the aord interferes with naming the color of the Word

#### Question:

How does the stroop effect affect students' responses? In other words, how will students respond to having to name a color written as a word of another color.



## Color Confusion

BLUE



















Acknowledgements to all our 40 participants who let us test them for a few minutes. And the science teacher who let us take his students out of class for a few minutes to help us in our project. We'd especially like to thank our science teacher for being so supportive and helpful with this science project.

Computer with

10 sheets of pape

Ink

Notepad

#### Procedure:

First, I got ten sheets of paper an own "Stroop Effect" cards. For ex typed out the name of a color, wi colored it in a different color ink, Then, I gathered 40 willing partici tested them one by one with the made.

I instructed each student to say the they saw. After we tested the studgot the student's GPA and recorder mistakes. (So I did this as a 'blind' si that I was not biased in my testing. separated the GPAs into three categ and found the average number of m

#### Results:

According to my data, people with GPA between 0-2.75 had an avera of two mistakes. There were nine people in that category. People wi a GPA between 3.0-3.5 had an average of one point five mistakes and there were eight people in that category. While people who had a GPA between 3.51-4.0 had an average of one mistake and there were heesey-three people in that category

## Conclusion;

My hypothesis was correct. The highest GPA group, 3.51-4.0 had only see mutake on average, while the Recogn of two mirror And S.S. restricts

MUSIC AFFECTING HOW LONG YOU DO MATH **PROBLEMS** 

#### QUESTION



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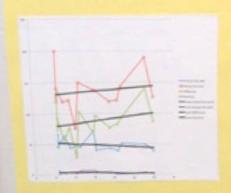
Variables

SMEAN Surrent.

200

CONCLUSION

## THE STROOP **EFFECT**



Statement Of Purpose

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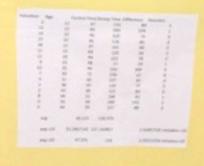
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Hypothesis

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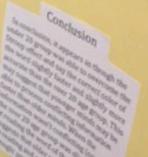


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#### Observations and Res

The data from this experiment s that as age increased, so did the le THIRD time the volunteers took to name colors from the paper that had difcolors associated with the written of a color. Nowever, on the contro the experiment, the data shows th age increased the time it took for voluntoers to read words associat the correct color decreased. The a time for volunteers under age 20 f through the Stroop effect card wa seconds. The average time it took voluntoers over 20 to get through Scroop effect card was 137.1 seco

average teacher of existakes for the dates you 20 group was 2.4. The average number of contains for the over 20 group was 25.



## Hypothesis:

Materials:

LON

MC

OBL

I hypothesize that propie who play at instrumethous a befor short term memory because they are as in times music and memorize the nest the rotal affect on that hay can play the music correctly. Also, people who don't play instruments only use one half of their train normals, but studies have shown that people who play an instrument have more access to both halves of their train of any great time.



**Musical Memory** 



#### Purpose:



3



The purpose of my science fair experiment is to test if people who play an instrument have teller <u>phort lean</u> memory various people who don't play an instrument.

#### Data:

Non-instrument Players (1)

Instrument Players (No.

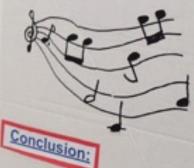
Non-Instrument Properties

Instrument Players (2).

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Bearing	160
Total	200
100	



The manipulated variable, or the aspect of the proje

that changes, is the people who can play an instrument

serus from who can't play an instrument. The resignor

numerical per minute. The controls, or things that star

the same, are the amount of people from each-group (

total, they all had to memorize the same words, and

trivitry fact to memorize the words. I also made sure the

ther was stroped at the same time for everyone. All of the

control variables are extremely important for the outcome of the project because in order for my experiment to be

surrounful lived to lessy everything the exact same except.

variable, or the object lint measuring, is the words

**Variables** 

for the manipulated variables.

THIRD

#### Graphs:

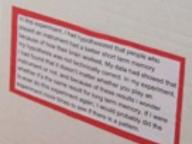
GRAPH 1:

GRAPH 2:









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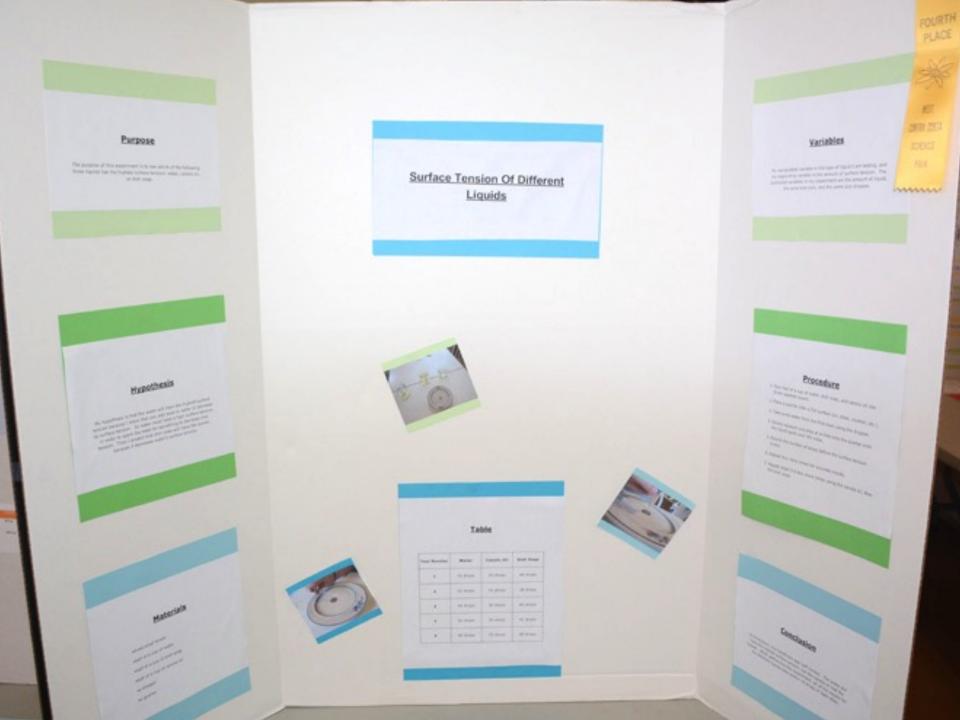
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## 7<sup>TH</sup> GRADE

# PHYSICAL SCIENCE



### Procedure 3.742 for eage with a half-anch of water. 2 has verying seconds of sub-in-such copy I tempor Question tempore, 's tempore, 314 tempore and 0 tempore Water, Exception of the second section of the section. How does the concentration of salt in water affect the Salt, Altouristic want level daily until all caps grapped And Supor reprinter to more the outcomes are six evaporation of that water. Results Evaporation Hypothesis I believe that the salt will slow down the water's guaporation rate Materials L'Word 2.8 by espe 5.A nonbook Background Research Future Experiments Conclusion Variables



#### INTRO:

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Note enclosive control (leggy set) should be upforted and of the reservoirs of the control of th

#### STATESTALS:

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#### PROCEDURES.

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FOURTH PLACE

#### PROCEDURES



















## What substance can melt a solid ice cube instead of salt?

#### Why not use SALT?

Sat he beer specifically procedure that it is needed in the environment. How'll bear down the freeing between last of mater, and it can affect to quality strendle us mate, the water containing the salt, washes onto printery stream, and can have aquatic plants, and annual, it also dimension about of fluids coming in and put of treshwater organisms, it can asso head to sait pollution from the chloride concentration released. from the salts.

#### Hypothesis

My hypothesis is that much will exit the wild by sold Nation that sager, sand, and being safe. Much a paper of material added on the surface of all, to ensure a resident a manife consists of decaying most, but, and compact from make a make of burging state, by their side is all red the see because the bases operate a large of set, where it Officers that the salt pay have a long

## Are There Better Substances To Melt Ice More Efficiently

#### Sugar



Baking Soda





#### Mulch



Sand





#### SUMMERLY

for herically I assessment how the reacts to a differ substance and record how long 3 tools for it to men't. cognitions, showed that MULDI, mets a solid cohalor than sign, said, and toking looks I even repe experiment from times just to make some that my di-

#### Conclusion

Compl. I have represed how different substances can make or in different times, because or examined you be use made in natural of sall, because its way better the ensiry better, and the off a right resident from the decaying inputs. For increased to much from the experiment, mad a harrower changed my recipio about tix and few it made.

# Question:

Will the temperature of a magnet affect the strength of its magnetic field?

# Hypothesis:

I think that the hotter a magnet gets, the stronger the field will be for that magnet.

# Materials

- digital thermometer with probe
- · A pot
- · tongs
- · stove
- iron filings
- 5 magnets
- inch ruler Lined paper

Independent: magnet size Dependent: magnetic field

# Different

# **Temperatures**

# of Magnets and their Magnetic Field





Heating Magnet in fry pan. Used digital thermometer with probe stick to measure magnet temperature. Used tongs to take magnet out and put an iron filings immediately.

Magnet sitting under lined paper with iron filings showing area of magnetic

## Results

2 8/16 2 5/16 2 5/16

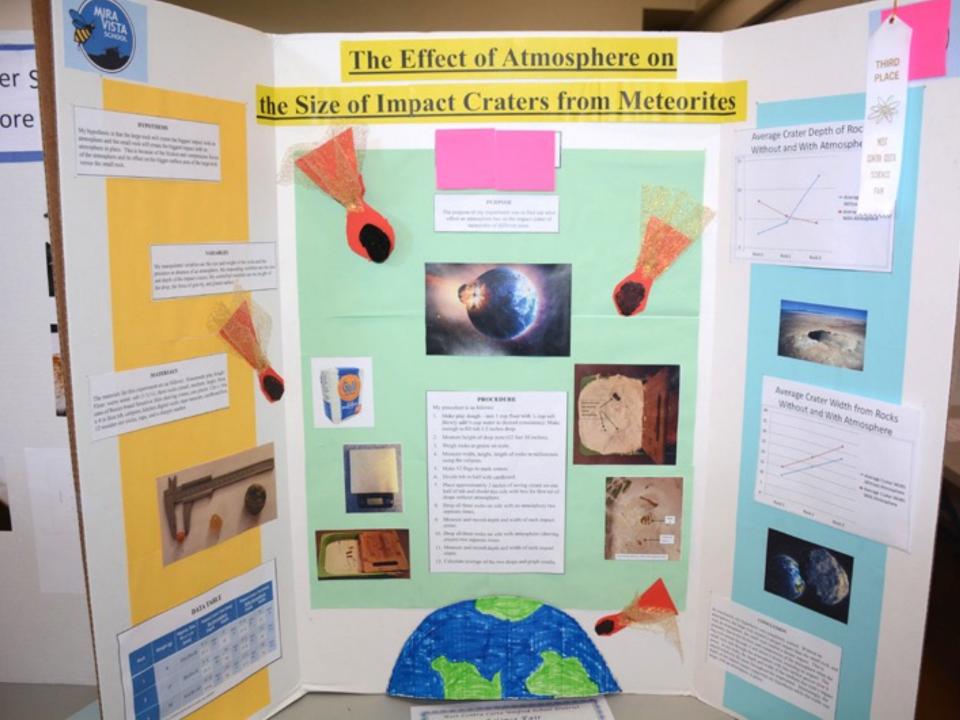


FOURTH

# Procedure

- 1. I warned up the magnet by pan and putting it on the stoy agnet digital thermometer probe sti and waited for the thermorn? temperature I wanted.
- Later I removed the hot m ongs and placed the magnet un paper with iron filings on management of Then I lifted up the paper and left the extra
- ion flings fall of. Then I measured the iron flings with a ruler. I started with 212 degrees fahrenheit and then went to 140 and 104 fahrenheit for warming.
- Then I used room temperature for my magnet which was 71 degrees fahrenheit.
- 4. Again I placed the magnet under a piece of paper. Then on top of the paper I put iron tings on it. Next I shed up the paper and let
- 5. The last magnet I put in the Freizer, it came out as 49 degrees fairwrithed I had the iron surge on a After that I repeated step 4 again.

Conclusion:



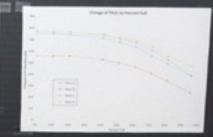
How do delivered personals of value reflect the restreant frequency produced by

#### Hypothesis:

If the more mass you have in the glass moory the four gins volcoin that valvate and the four notice in that schrode means has energy that is in the potent which cause the nor enforcing to have a lover frequency then shen. different amounts of water are put in the givens, the higher amounts of uniter will. cause the worse glass to produce a lower frequency than that of the lower amounts The amounts of valor represent the independent seriable while the frequency is the dependent variable. The underlied naziables include the temperature. pressure, what is irraide the place, and what is nutpide

- 2. Accomplate Materials
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# Wine Glass Acoustics

















#### Materials:

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## Hovercraft Top

### Hovercraft Bottom

#### Introduction

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#### Problem

On which senders will a honoright travel for larger DESTR. LANSING, LOSSIE, OF PERSON

# Best! Hovercraft | Surfaces

#### Constructing the hovercraft

- b. Out of the stories plants and tape a most with
- 9. Make a 5/30" tolk in the reside of the 6" wooden that and attack it in the following reduc-
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- 16. The prior cases books to can she 2" boles.

#### Procedure

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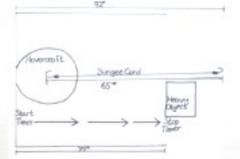
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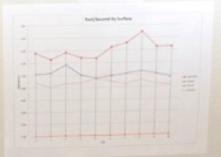




#### Building the Hovercraft



#### Testing Layout







#### Cement



Gravel

#### Conclusion

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# BIOLOGICAL SCIENCE

# Statement of Purpose

Hypothesis

-

RESEARCH

Can Erosion be Prevented Using Different Landscapes?

#### MATERIALS

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#### **PROCEDURES**

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## RESULTS

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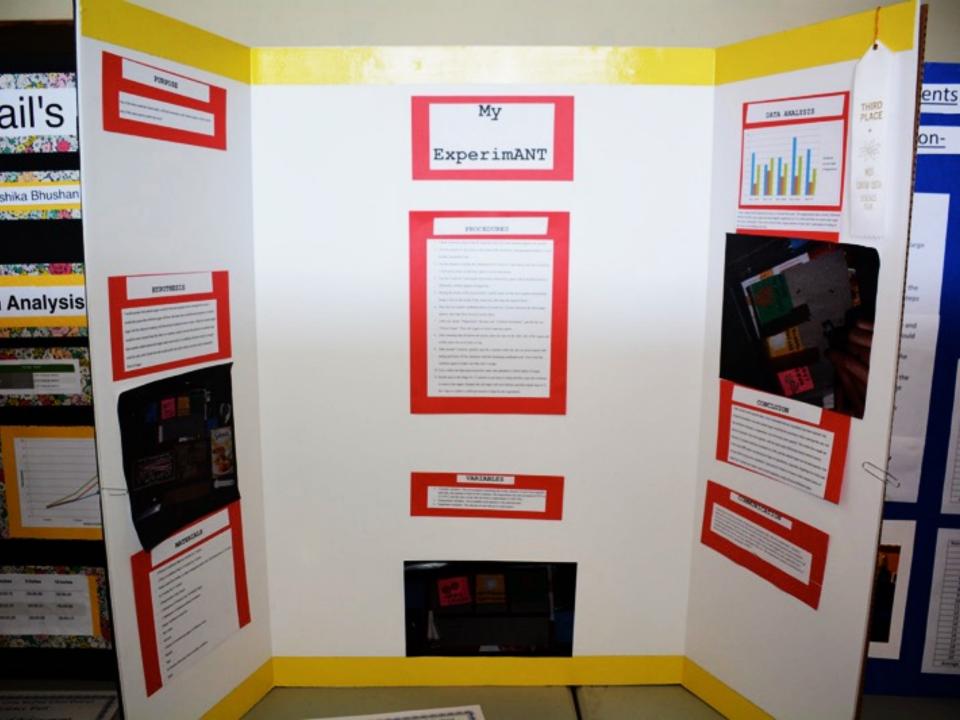




THIRD

PLACE





# Purpose

The purpose of this experiment is to see if those that Work out or exercise on a regular basis have a bigger lung capacity than those who are not active. Since adults have bigger lungs than children, I am only testing students ages 12-14. I will have a sample of 40, 20 athletes and 20 non-athletes. For this experiment athletes are defined as someone who participates in a sport outside of school or someone who exercises 120 minutes or more a week.

y

CEDURE

# Hypothesis

If think people that are active have a groter larg capacity than people who aren't active. When you exercise, you work out your lung, and make then bigger and stronger. This means that you can take a deeper breath than people that don't everuse regularly.

# Materials

- 1. Measuring cut
- 2. July of water
- 3. Large bottle
- 4. Marken ben

- R. Large tob of poort should blom surp



# Do Active Students Have a Bigger Lung

Active Students? Capacity Than Non-

## Procedure

- 1) Take the tape and place a strip along the large
- 2) Take the funnel and pour 250ml, of water
- 3) Take your marker/pen and draw a line on the tape where the water line is made. Repeat steps 2 & 3 until bottle is full
- 4) Place hand over lid of the full large bottle and flip into the large tub of water. No water should escape the bottle
- 5) Carefully place one end of the hose into the bottle while in the water
- 6) To measure your lung capacity, blow into the hose in a single breath while holding the large. bottle down
- 7) After you are done blowing out, count the marks made from your marker/pen that are above water level and do the math:
- X (hash marks above water level) multiplied by

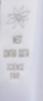
Divide y by 1000 and that is your lung capacity measured by liters.





# Conclusion

Of the students that I tested, the as lung capacity for active students will 1,4035), and for non-active student 85125L Therefore my hypothesis (573 57) correct, students that are active ha ADDO bigger lung capacity than those who

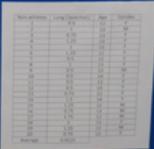


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## Results

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## Materials

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## Procedure

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#### Problem

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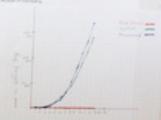
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#### Intro & Hypothesis

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#### Results

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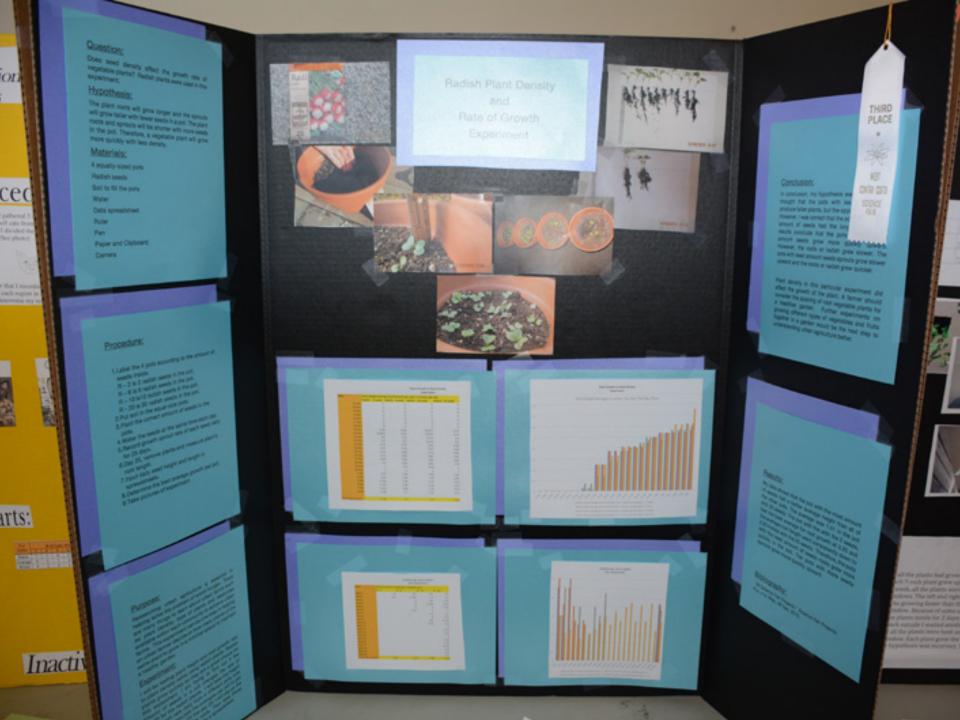
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The state of the

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Conclusion



# Purpose

The purpose of this project was to observe the stages of mitosis in onion roots and discover which phase of missais is the most common. There are 5 stages of mitters and each stage has a different length of time for when a occurs.

> Hypothesis My hypothesis is the most common stage of misself is found in the orion sold to will be metaphane and I expect to see a higher number of green in management than the other phones of manual

> > Methods/Procedures

# Materials

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Muriatic and (38% HC):

Suffery program

Swings or believes

Rapide Marks or scorpe?

Methylene Stor SN w/s Solution Microscope states and observing Dissecting Interescepts

magnifung ters.

Stockfood waster

Plants in an draining

# , Data Results

Phase of Mitoris	Numbers Observed
Interphase	33
Prophase	51
Metaphase	20
Anaphase	- 13
Telophase	12

Observed Stages of Millson, in Driven Boar Tip.



# Tehsphase

Research



# Conclusion: PLACE

I observed that the stage of mitosis th

prevalent in an onion root tip that

was prophase and not metaphase as

Labe learned what mitosis is and hi

and what it does.

I kened was how to make a microscope slide

that you can use for observing microscopic of trings that are naised to the Number eye. A

presentation board of my findings was

prepared and submitted. This project was a fun and educational protein that I was proud to do.



CHARLE COOK

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# MATHEMATICS & COMPUTERS

### Question

when it the relative of the lot to be first and would receive

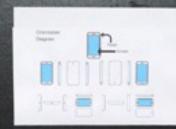
## Question Description.

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Wi-Fi

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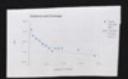






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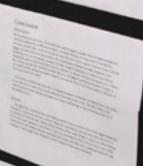














sis

Develop the most accurate strategy to win at the simple card game "Hi-Lo" by using basic probabilities and determining a method for guessing 7's. Since the 7 card is in the middle when aces are low, should ? be considered a high or a low card? By verifying which strategy is most accurate. you are more likely to win at "Hi-Lo" card



- Deck of 52 playing cards
- · Pen or pencil
- · Any blank piece of paper
- Calculator to perform basic equations









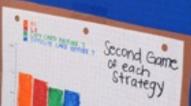






- Shuttle the deck of playing cards.
- 2. Flip the first card over
- 3. If the cord is greater than a 7, it is very likely that the next card tipped will be lower than a 7, say "Lo".
- 4. If the card is less than a 7, it is very likely that the next card tipped will be higher than a 7, say "Hi". 5. If you flip a 7, make a decision on which strategy you will use throughout the game. For the project we used: all 7's guess high, all 7's guess low, copy the guess of the card lipped before the 7, or guess the opposite of
- the card tipped before the 7. Keep track of all cords tipped along with the guesses. of "Hi" or "Lo" and how many of the guesses for the T's are right or wrong. This will help us determine how accurate each of the four strategies are.





CONTRACTOR



number of Accurate







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The control of the late of the

next should be a higher card







# BEHAVIORAL SCIENCE



Can eating peppermints improve reaction time on reaction related tests?

# HYPOTHESIS

Peppermints will improve reaction time on web based mouse clicking response test

# MATERIALS

- Ideas for where to find the volunteers (asking) classmates, speris team members, family, trends and
- All volunteers must have access to present computers
- that have the Internet in their homes Peppermint candles (2 for each volunteer)
- . Lab notebook

Charts

# PROCEDURA

Miles graphe ad communiche als extents eller 4. https://www.youtube.com/watch?v=wy86V17Hy8

THE POWER OF **PEPPERMINT** by ROSCOE BELL

Rossos Bell's 2015 Science Project - Participant Form

#### Record Your Data Below

-	plical baseries	See I will Suppressed

Please return your test result to Roscow Bell when complete

http://www.sciencebuddies.org/science-fairpects propect ideas Humitia p027.shtml http://www.biostathandbook.com/pareditest.band



arc

With Mine



# Purpose:

As you age, you produce less toste buds, weakening your terms of toste. Ostensibly, dilibras prefer sweet foods, tennagers prefer solly foods, and adults prefer bitter foods. This is partially based off of the sensitivity offected by age? What tostes are more offected in this experiment, we will find out.

# Hypothesis:

predict that electric rape affects your mater book, it will not construct the bookstation on to what open profes what forces the bookstation for implies other tooks. The professional industrial to the will obey to an an amount of the will obey to an an amount of the will obey to an an amount of the same forces and construction to the will obey to an an amount of the same forces and construction of the same forces and construction of the same forces to an amount of the same forces to the same forces to

# Research:

# Does Age Affect Your Taste Buds?



# Materials:

- around thirty participants of varying ages
- foods of moderate salty, sweet, and bitter taste
- · blindfold





# Procedures:

This experiment will involve a blind taste test of three out of five of the fundamental tastes, which also include sour and smami (savory). The participants are blindfolded so the data will be solely based on the food's taste.

- 1. Blindfold the participant.
- Have the participant sample the food of each category. (sweet, salty, and bitter)
- After each sampling, have them rate the level of sweet, salty, or bitterness from one to ten and question what taste they prefer.

# Data:





# Results:

The children were the most serial to some out of all the age groups, whereo adults were the least send.

The levels of sensitivity to aveet an soft were lower for children and fugate-view for young adults. Adults nated the aweet and soft though out the children, but also nated bitterness low.

All of the children and tenangers preferred either aweet or softy foods, making weet foods. All the people who preferred bitter foods were young abilit or adults, but not people children.

# Conclusion:

S WEATI













# Hypothesis:

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# Materials:

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# FITTING IN



## Data Analysis:

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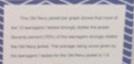


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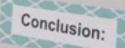


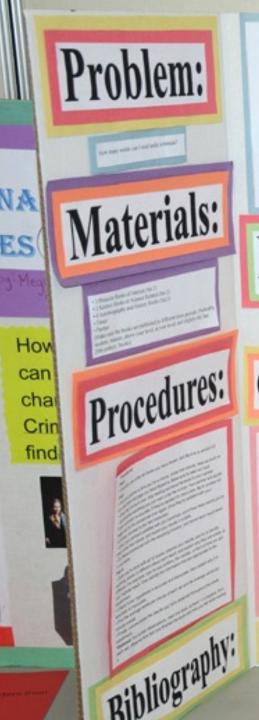












# My Read Speed

**Hypothesis:** 

# Graphs:



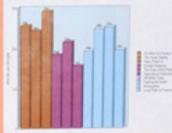
Insufficient

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# ata Analy







Charts

Research: **Observation:** 

# Communication:

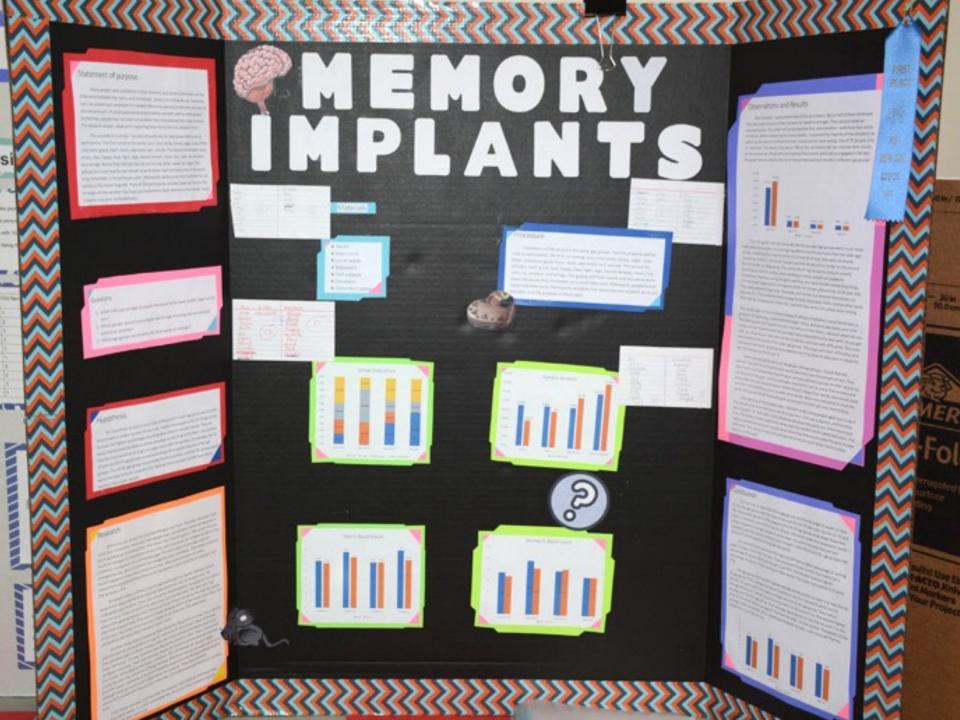


below 200

200 - 250

above 300

# Conclusion:



# PHYSICAL SCIENCE

# Question

How does the pressure of a volleyball affect a player's surving?

# Hypothesis

If the pressure of the ball is high, then the serves will go farther, and vis versa.

tagram

Mixture

tarburats bottle with ountain Dew spotitute

# Materials

- · willey full · relley hall people
- \* Present cupe
- · rolley bull not
- \* premaring tays • at least two subjects

# Procedure

**SERVING** 



# 1 2 3 4 5 6 7 8 9 10

10 15 13 20 12 22 15 24 17 26 17

20 13 15 15 9 17 14 14 15 23 16

10 17 17 18 5 12 13 7 14

Subject A

SCIENCE



Subject B

# 1 2 3 4 5 6 7 8 9 10

0 7 5 5 4 8 9 107 8 6 10 18 11 10 12 11 12 9 15 9 14 20 11 20 21 20 11 16 17 11 16 13



Subject C

11 1 2 3 4 5 6 7 8 9 10

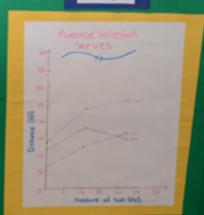
Trials

0 16 10 15 12 18 15 9 10 16 20 10 23 25 29 30 20 5 24 16 23 25 20 31 32 32 22 15 25 28 27 29 26



Graph





Analysis

FOURTH

PLACE

The flat ball at 0 PSI absorbed the pressure as it touched our hand, whereas the pumped ball at 20 PSI bounced off our hand as we served it, which hurt a little. The proper ball was in between. The proper pressure of a volleyball is 10 PSI instead of 20, but why? This may be because it does burt when you handle the pumped ball and it may be more likely for people to hit the ball out of bounds. The "out line" of a volleyball court is 30th However, test subject C had many serves go past that ine, as shown by the chart. The proper pressure, 10 PSL is a happy mediant of the two

# Conclusion

Sea of the September 1881 Service Assert So to Service South

Dat

# Introduction Revelle: Rverager I was interested in finding out how different liquids cool down because I've roloed hat. some cool down faster than others. For example, water seems to tool a bit fester than soups. I was also wondering it there was a direct correlation between a liquid's Cooling & Denzity cool-down time and its density. I got some help from my parents. How does the density of a liquid affect its cooling? frerage Cool-down Times Problem How does the density of a liquid affect is cooling? Results: Water Results: 4% Milk Hypotheria The denser the liquid is, the larger it will take to cool down. This is because it a denser loud the molecules cannot most around as easy so their energy-heat can't escape as easy Materials ALS Results: Oream of Mushroom Soup Results: Tomato Sauce CONT

# Introduction;

I chose this experiment because of my interest in bikes and I would like to improve my mountain bike racing. I also wanted to prove if the accepted theory is true—that lower tire pressure will roll faster on dirt and rocky terrain. It's generally understood in mountain biking that lower tire pressure also provides a smoother ride and improves traction. I will be testing the following tire pressures (in pounds per inch):

- 60 psi me mainur proces represents modernes.
- 40 psi
- . 20 psi pre persona minerale presure for ability

How does bike speed change when tire pressure changes?

The lower the tire pressure the faster the bike will go over dirt and rocky terrain.

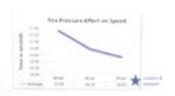
# • Full Suspension econtain

- bike (25.8 lbs.)
- Bike helmet . Tire pressure gauge
- Stopwatch . Notepad and pen
- Assistant

# Tire Pressure Affect on Bike Speed

#### Results:

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10.40	1199	1776	12.04	1111
	10.50	10.00	30.34	
At par	10.10		14.00	



#### Results:

- · I had the fastest average time with 20 psi tire pressure.
- · I had the slowest average time with 60 psi tire pressure.
- · As you can see from the chart, the biggest change in speed came from 60 psi to 40 psi.

The people who may benefit from this experiment are cyclists who are unsure what tire pressure to use to increase









### Procedures:

- Gather materials. Find a safe hill with a slight decline,
- Mark the starting and ending point FOURTH yards distance.
- Check and set the tire pressure at 6
- 5. Conduct the "roll out procedure" b from a stand still. Begin to roll whe assistant says go, without applying pedaling power.

DESIGNATION OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TO THE PERSON NA 6. Assistant starts stopwatch when he

- go. The assistant stops it once you end line.
- 7. Record time from start to finish in seconds.
- Do the "roll out procedure" 3 times at 60 psi
- 9. Do the "roll out procedure" 3 times at 40 psi
- 10. Do the "roll out" procedure 3 times at 20 psi

To make this experiment better ( would try to remove the variables:

- Draw more precise lines at the start and finish
- Granes Worth lend brick , their fire decision parts with chair and ride the has such one to separate terms of the posts.

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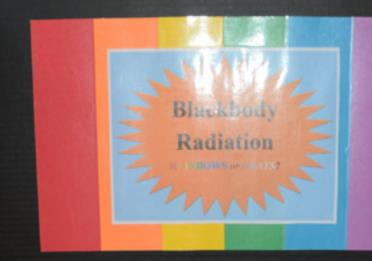


## Hypothesis

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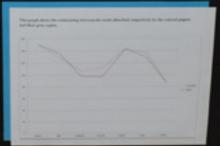
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#### Results ....



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## Conclusion



THIRD PLACE





TURES

## Problem.

Magnets have many offered applications and an used a productiveness with a versity of variation included wedge to the magnets podum the time way it preference will oberw temperatures? In it before to one a mapper at the temperature server.

Materials:

Magnets perform befor in feeding conditions that led one because but things must and would soon to be 'waster'.

One of and florescening program before to process

One handwill fight sole resource of larger

· Filing become part to 20, 5 degrees Commit

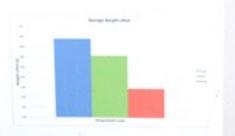
15 on larg page of land any site Sender hard

One digital scale (necessary empt)

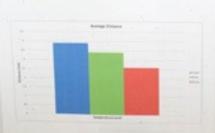
· Oze large time pass

## Does the Temperature of a Magnet Affect its Performance?

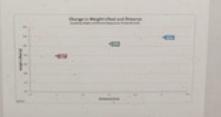












#### Conclusion

My hypothesis was correct. After tending that streng aftered ways with each temperature, it can be consider proposate of a regnet them, its performance entranplanty visible in the Average Weight Lifted, Average P. Average Distance Graphs, For example, the average of for 35 etc a heavy regret, to 3.4 with a magnet prol 5 with a full magnet. After determining the notati strength of a magnetiand its temperature. This can be other vendor, such as the Change in sheight Lifted a stows he temperature consistion with both weight as smoot that respects are more efficient in colder and epoled in both industry and home use, where magne verying lumparatures.

## Conclusion contid

The results of the experience may have been showed because while because and proper area for last of the respect second or story the inspectation and littless. This may have been and the country of the country of the country of which the managed they's have beening the engine surface we would be seen and the seen of the seen and the second s And the second section of the second section is we a result have been faced been decreased with



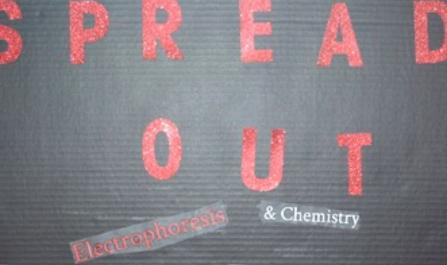




Hypothesis:

CONTRA COCC





# Materials:

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3. Using conditional, can read a seask. This will be need to be alightly larger, then the width of post box, or it will need to read on the skips. Using your rains, make now the touck not read opposed. These needs will be used to cream into most reading pointing for the Asset.

## Ingredients in the dye:

Blue natural dye: Glycroin, deinnived water, orgetable joice & griryline (some sort of bacteria).

Blue artificial dye: uniter, propylana glycol, FDBC, Blue 1, Ra 43. propylparubes.

Vellow natural dye Glycerin, deimiced water & turneric ( ginger variant).

Fellow artificial: water, propylene glysol, FDesC, Yellow S, Ro 40, propylparoles.

#### Pre-procedure: Making gels & substances

the stage a see. We are entiring not addressed here. They'ver not a described over the other in the higher states. The responses among any construction on the highest deposition by the highest deposition of the highest deposition of the highest deposition of the highest deposition.

- E. As for the agreement which the first thing would will it had a temporary fragment pro-
- Managem for infusion and 2 dates in builds, the transport armeds.

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- to provide the second and all processors are place as all of power for.

  If they the health appear whether the three death is not enough a that the real
- Find the barrier property of the last

Procedure: Let the experiment begins

2 the bearing heigh plane are to adopt a general to any own as a single and a si





The state of the s

## Procedure:

- 1. Cut 1 in along the strel would put
- 2. Pour 1 cop of first acid ons a book. 3. Thread the rubber stopper sets the
- thermometer 4. Measure the temperature of the lest take. at time sero
- 5. Sook the stret wool strip in the acid he lit. seconds.
- 6. Remove and quickly squeeze out excess tiquids.
- 7. Immediately, thread the steel wool onto the thermometer's grobe and place the the test tube
- II. Quickly wrap the test tabe in a loved to retain say generated beat and place in a cup-spright
- 9. Record the temperature every mason for \$3 minutes they once 5-minutes laws 50. Superat steps 1-9, 2 more times for a total
- 11. Report steps 1-10 for the second and and once for water

Acids, Bases and Neutral Substances --Which Has the **Greatest Corrosive** Effect On Metal?

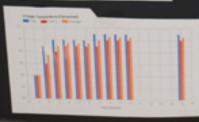
#### Problem:

Will Acids, Neutral Substances or Bases Cause Metals To Rust Differently?





Norge							



#### Hypothesis:

I predict that acids will have the greatest effect on the metals because they have qualities that breakdown molecules and specifically react with metals.





#### Materials:

- \* Glover
- \* Timer
- \* Test Tube (glass)
- \* Stopper
- \* Thermometer
- . Steel Wool (1 in. per liquid)
- \* Scissors
- \* Ruley
- · Acids (Lemon Julos, Vinegar)
- \* Mater
- \* Blase (Soop)
- \* 3 Breets







#### Conclusion

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# BEHAVIORAL SCIENCE

# PART ONE

Material's: described when plant

### Procedures:

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To seek contemporary to watch the next wors and left you have many radiate height use that get shift. 4) and I they saw any facing in the other 5) repeti steps 1-4 for remaining 5 certestons

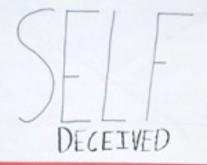
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Analysis and Constants

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Scan for Video 2 (http://channel.nationalgeogr aphic.com/brain-games/vide os/brain-games-pay-attento







Problem: Why do we make the decisions we do in everyday life?



voluntary

Hypothesis: People make decisions in everyday life based solely off of past experiences.





Lake Amon Prove Experiments of Street, very different, rates to the same topic. Both of these tools are made with a different type of personner. In the first video, the nameber mays. mongs to make you think of what proving seeing a different way than when you nermally would This makes it a beact game of perception. The second votes whose you a more simply string sociation. This is enough to store your effection peop from any other details occur eround you making you three that you we

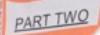
tely focusied but it reality pours the pringleds opposite. These always factor makes the second video a passe of attention

Advantages and marketers use these hard backerspoon ALI, the time, By personaling your brain to do whatever story want. They are managerinting you into storing ampliting from buying a practical to being a trip to the mason. This brings about the









Materials above, magician video

#### Procedure

t) Show first contestant video 2) Ask if anything also besides the changed in the video



THIRD

PLACE

3) Record data 4) Repeat for each combe-

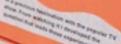


#### Date

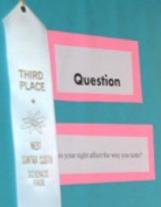
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# Anatomia and Conchaine:

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Hypothesis

Eligina belleran ha men tye, e jana ha Menera sake tan hay wili bash tan bash Menera bash ke sepandan

procedure Experimental Design

# Eating With Your Eyes



By Media Espirel



Data



Total org

The second secon

Results

Out of all there of the drinks, the blise one was the one that based the most abbrevia from the rost.

## Conclusion

Your right does after the way you hade.
It also depend on the purple you had it
on Older purple will say that the drinks
have different than the original one.

Future Steps

# PROBLEM AND THE STREET DESIGNATION

# HYPOTHESIS

ye

CONCRETE SECTION OF THE WORK THAN PROPULATION DISTRIBUTES MICHINETRO TOPOLO MILLEGRA

# MATERIALS

PROCEDURE

ARE THE OWNER MEDITING COLOR DATE OF REAL PROPERTY.

Results

SACRET MALES, REAL PRINCESS, THE TANK

DATA:

Figure 1

The graph shows how many mistakes each subject made for each set, along with the total number of mistakes

Science Tate

Figure 2.

The graph shows subjects and their GPA and age



The groph shows subjects time (in seconds) for each set

# DATA ANALYS

FROM SURVEYING & PROPER, THERE

MEINS TO BE A CORRELATION BETWEEN GEVAND THE NEMBER OF

SANTELL AS THE TIME THE DATA. PROVED THAT PEOPLEWITH GPA'N OF LY AND INCHES MADE LESS MINTAKES. THEN PROPLE WITH GPA'S LOWER THEN 12 FOR EXAMPLE, SUBJECT A HAN A GPA OF A R HAD THE REGISENT. SUMBLES OF SUSTAKES IN ALL TIBLE

SETS, THERE TOTAL ASSESSED OF

TIME THAN SUBJECT A.

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Figure

CONCLUSION RECOMMENDATION 

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# BIOLOGICAL SCIENCE

# Question:

Does a plant grow faster in topsoil or in compost soil?

# Hypothesis:

Marin Marin makin

If I plant a plant in compost soil then it will increase the growth rate of the plant rather than planting it in topsoil.

# Procedures:

- 1. Fill 2 cups up of topscol 2. Put a seed in each cup
- 3. Add 5 tablespoons of 4. Get 2 more cups and fill water to both cups
- them up with composit soil 5. Put a shed in each Cop 6. Add 5 lablessoons of
  - water to both cure

7. Fireby fact them in the And of sucher Soft and man



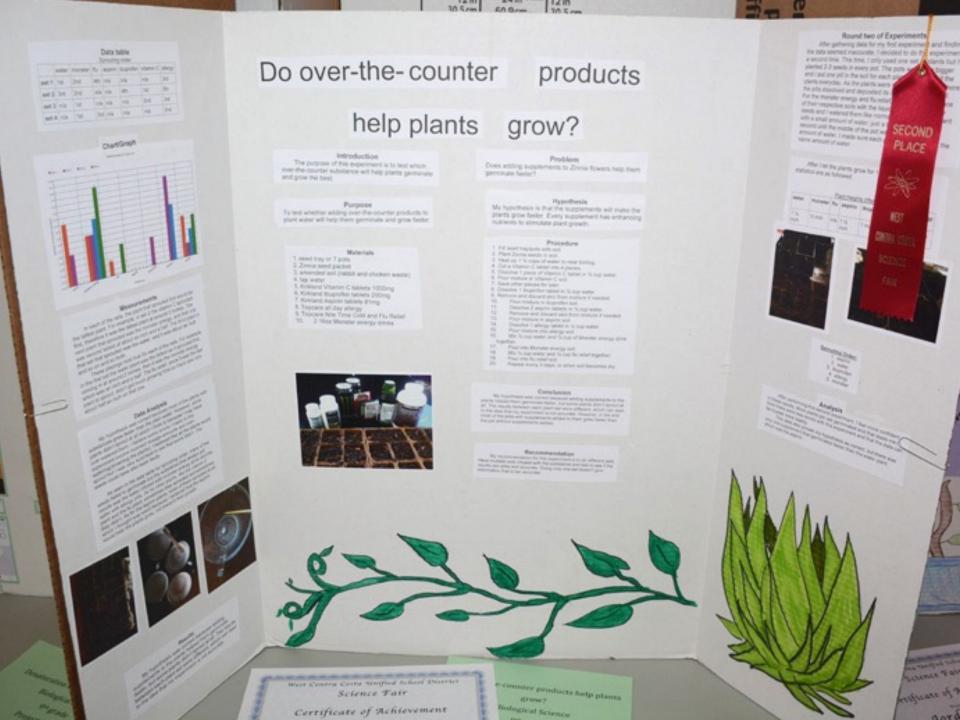
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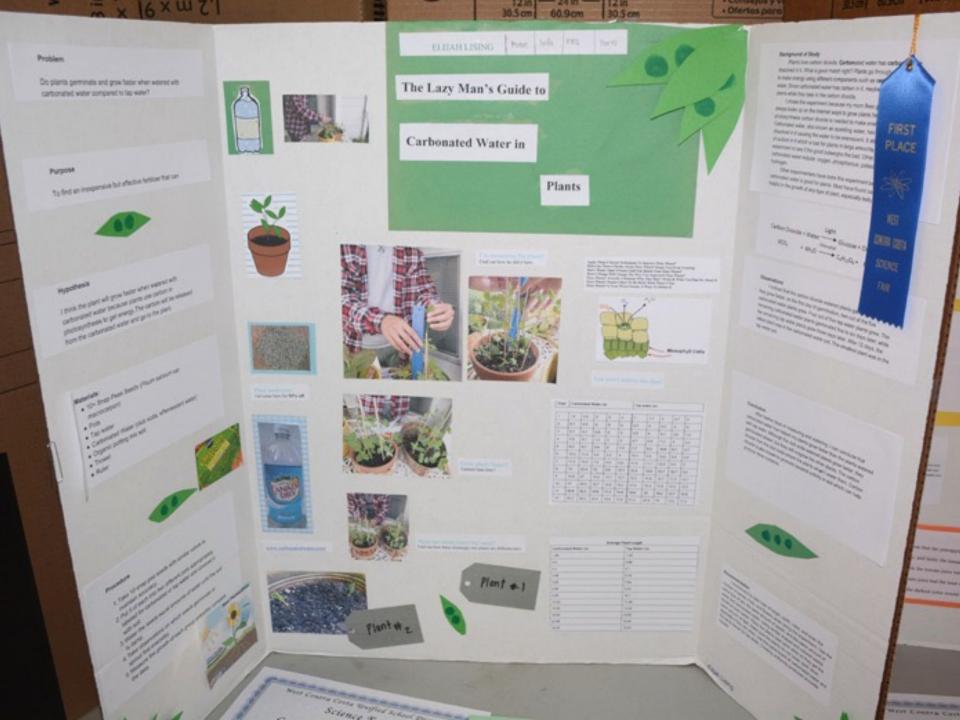
# Materials:

- 1.4 cups
- 2.4 seeds
- 3.tablespoon
- 4.water
- 5.labels
- 6.topsoil
- 7.compost soil
- 8.sunlight

In my project of comparing the two type of soils the in compost ail control ex







## 9<sup>TH</sup> GRADE

## PHYSICAL SCIENCE



Problem & Purpose

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- Table 10

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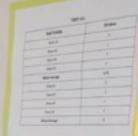












FOURTH

#### Results Test #2

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esults: The at evaporate stest was the lish remover. e 5th day it wa ne at 0mL.





## BY JUDY BINGLINGING

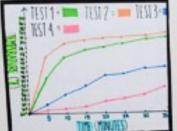
DATA







PROCENTA





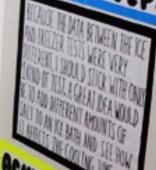


#### RESULTS





### FUTURE STEPS



ACKNOLEDGEMENTS

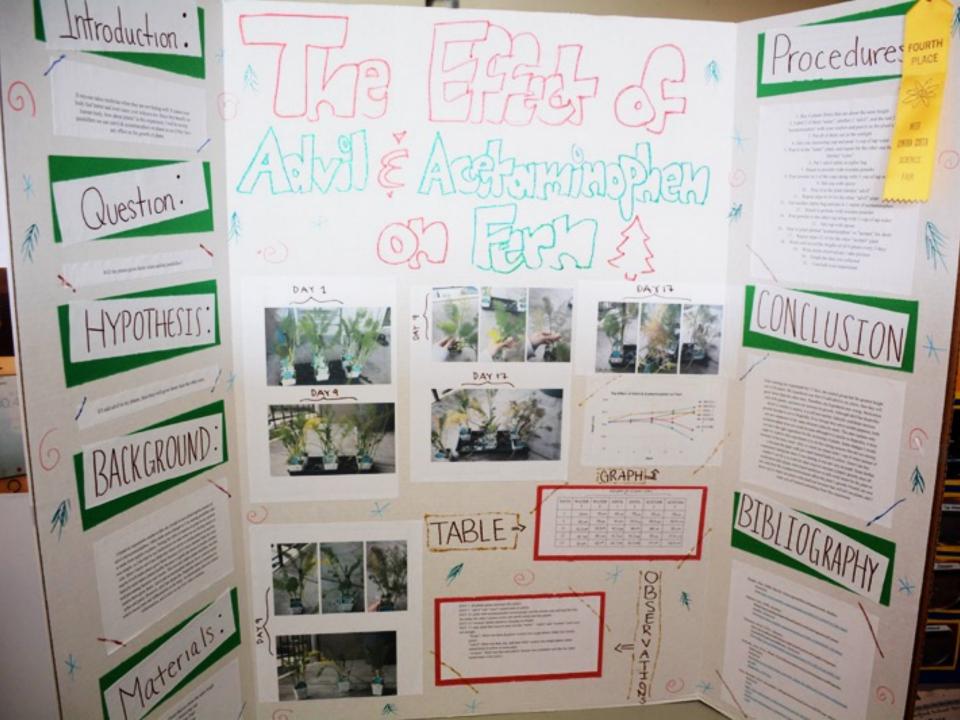


Charles



## 10<sup>TH</sup> GRADE

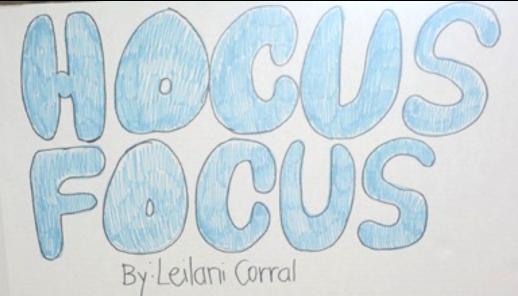
## BIOLOGICAL SCIENCE



## ntroduction

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Hypothesis

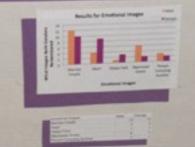


# aterials



### esults



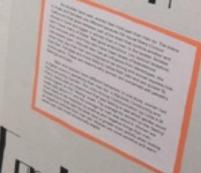


## Proced

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- Successful days I will have two labour, one for making party and because and find a will have for each time that arrive desired

Backgroup
Research



Undising

#### MRTERIALS:

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#### PROCEDURE:

RESOURCES:

### IS THERE MORE BACTERIA WATER OR BOTTLED





DAILY LOG:

#### DATA:













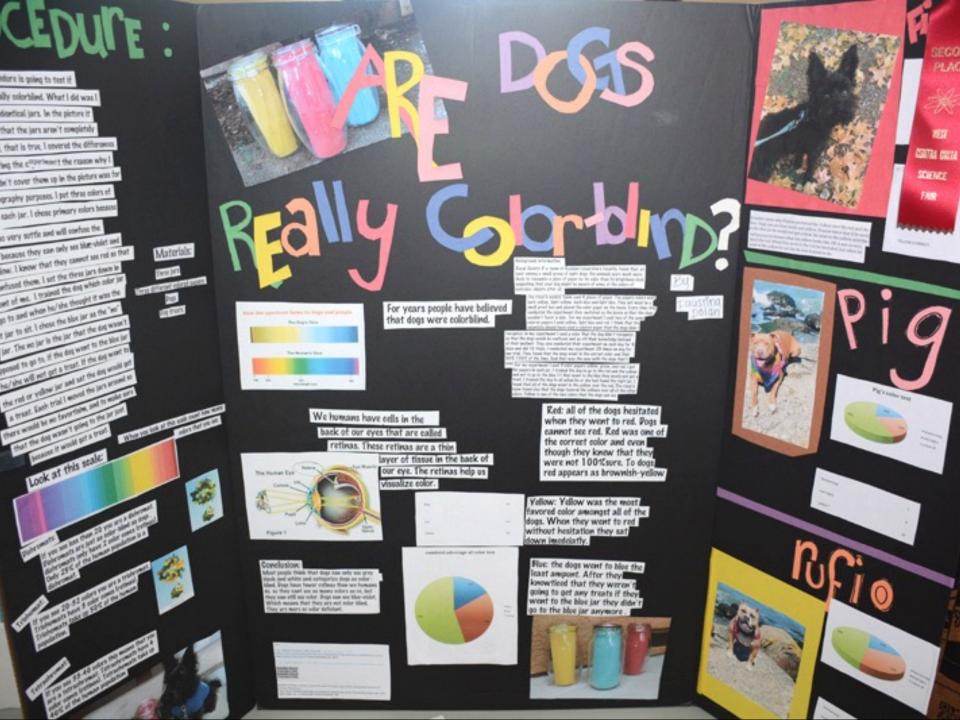


#### HYPOTHESIS:

#### RESULTS:

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CONCLUSION:



#### Introduction

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Uncovering Hidden Sugar in Your Food

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packer health academy

#### Data

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#### Materials

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Question

Hypothesis





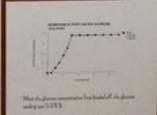
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Procedures

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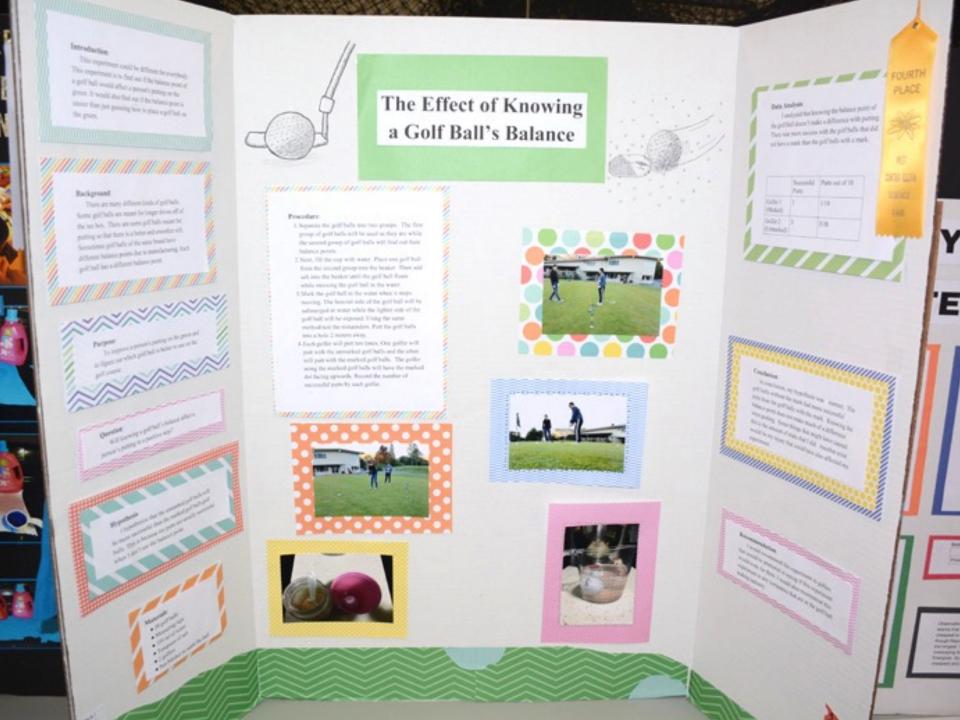


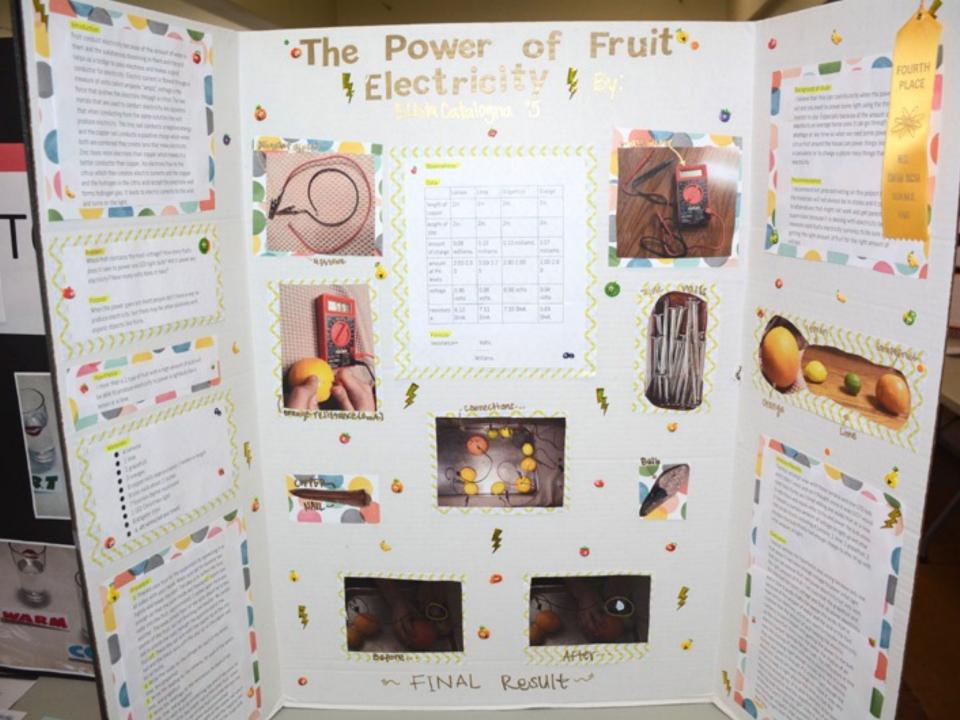
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## 10<sup>TH</sup> GRADE

## PHYSICAL SCIENCE







#### WHICH LAUNDRY DETERGENT BEST REMOVES STAINS & KEEPS THE COLOR LOOKING GOOD ?

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- 3.Eabel (self-shift)
- A Taplit I trap of real wine on one whole short
- S. Lar shirt on the 30 months
- 8. Custom: I report Deart districating Signet, 7 top of Andropos potentials, and I sign of training provided to make a fermiormark state consecutive
- N. Wash the pract of clash expensely on cold in. Plannyraph and record information about the shipt where it is done being worked and dried























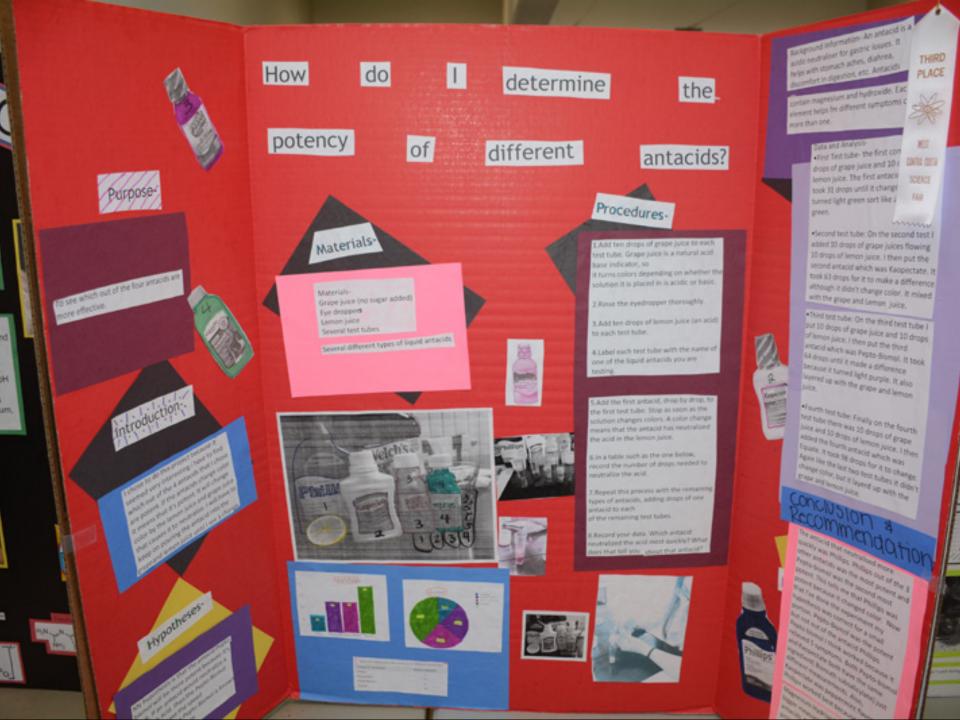




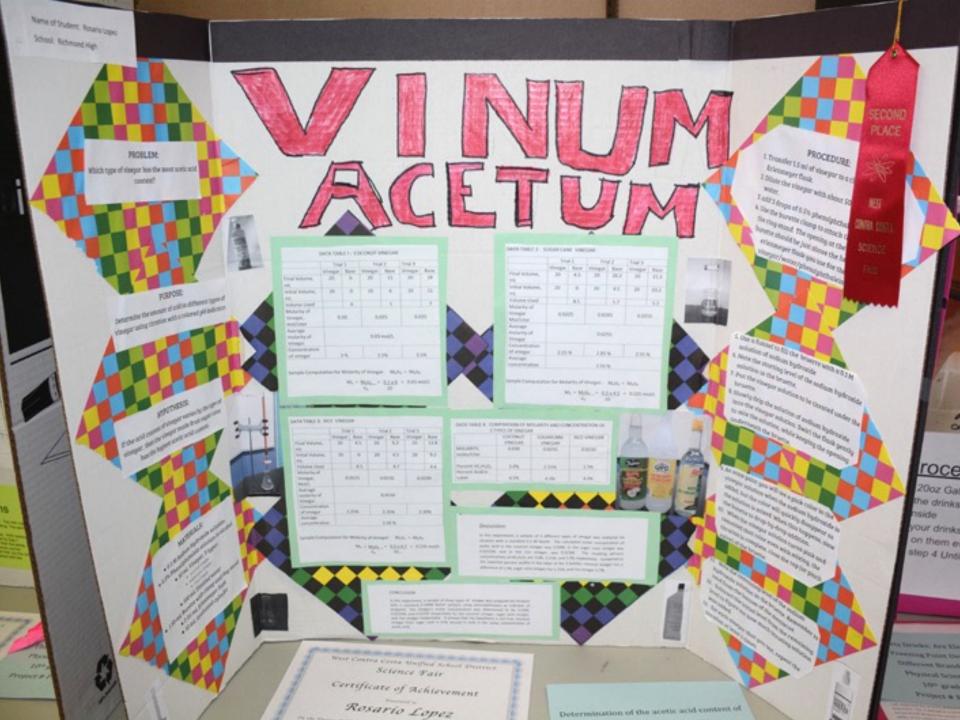
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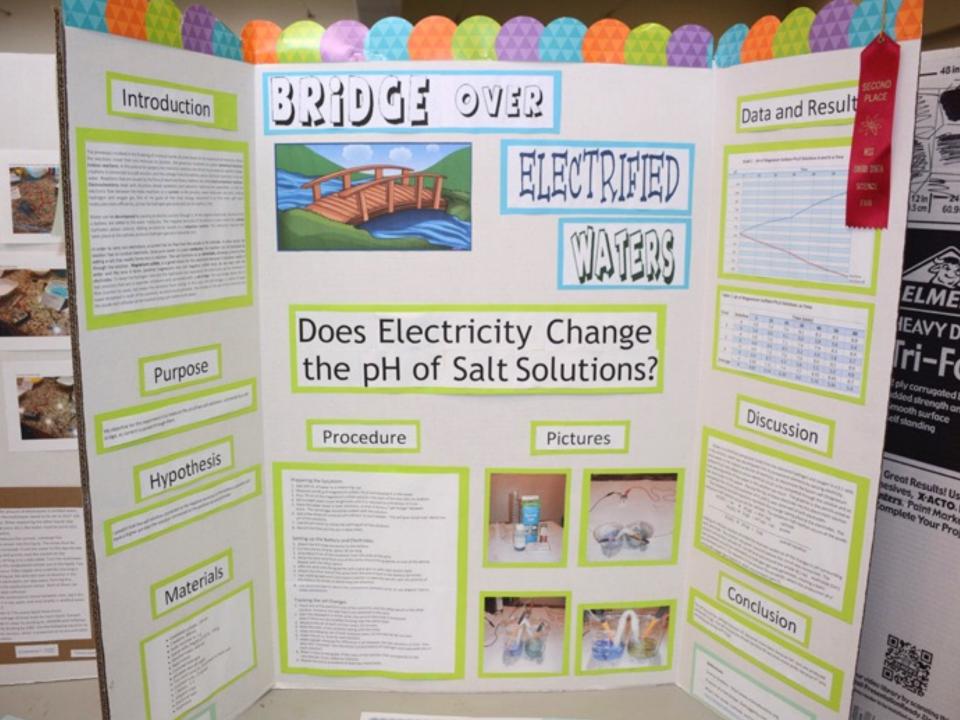
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#### PROBLEM

Problem:

ts

Which orange juice has the most Vitamin C?

#### HYPOTHESIS

Fresh orange juice contains the highest percentage of Vitamino

### MATERIALS

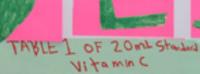
Wit. Ctablets , 550 mg 2% Lugal's hours subhan, and

South Start - 909









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	Indian	Tale
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Table	3:Til	return of	20ml	Floridas
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Section 1	23.7	28.7	31.5
M sant	5.0	9.5	5.5
Ayers	6	3	- = t.1

#### TABLE 2 Tiration Or 20 ML Fashy Squeezed Orange Juice

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total	ME	11.5	11.7
Married Wel	11.8	5.1	9.7

Table & Titretion of 20th Largers Change July

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Vitane laker USEd	5.2	42	42
Average Voune	5.24	3 71 92	42

Graph of Vit. C concentration the brands of orange

PROCEDURE

#### Langers Floridas DISCUSSION

The results supported my happentonia

had forthy squared story file

## 11TH GRADE

## BIOLOGICAL SCIENCE

### PROBLEM/PURPOSE Man, Solative to cost, how does affected branch empt pit lengt repudants and effect were to pro-min or less HYPOTHESIS hat changes what tigue of water a person wants to tirol MATERIALS Water Brands

= 124

#### DARE TO DRINK ANOTHER DROP?

Introduction: Water is very important in human life. We consume it everyday, whether it is from tap, or blore bought. The questions is, which brand is the best in terms of our health and being able to sinve

Obsertive To Find the pH level of each brand/type of water, comparing it to cost and its effect on bread towards growing mold. Also, check if the water is more acidic or contains more alkaline.

#### Data



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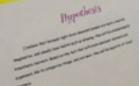
Results

Conclusion

#### Introduction

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Question



## BRAIN DOMINANCE +

#### Materials

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#### Procedure

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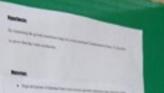


Results

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#### ENDOTHERMIC OR ECTOTHERMIC?













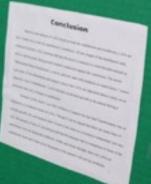












### 11TH GRADE

## PHYSICAL SCIENCE

#### Purpose

How does for and super affect the specific heat of different subsequent (water and director should



#### Hypothesis

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Materials

How Does Fat and Sugar Effect the Specific Heat of Different Substances?

#### Procedure

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#### Data Collection

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#### Procedure

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### Data Analysis

#### Error Analysis

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Conclusion



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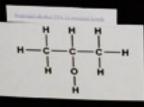




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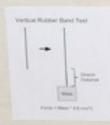
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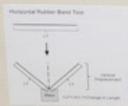
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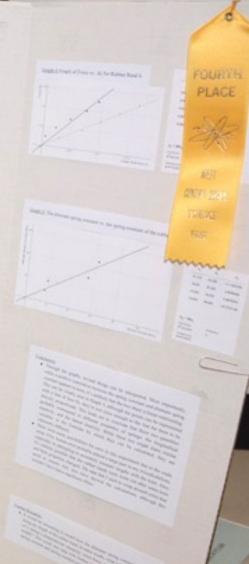
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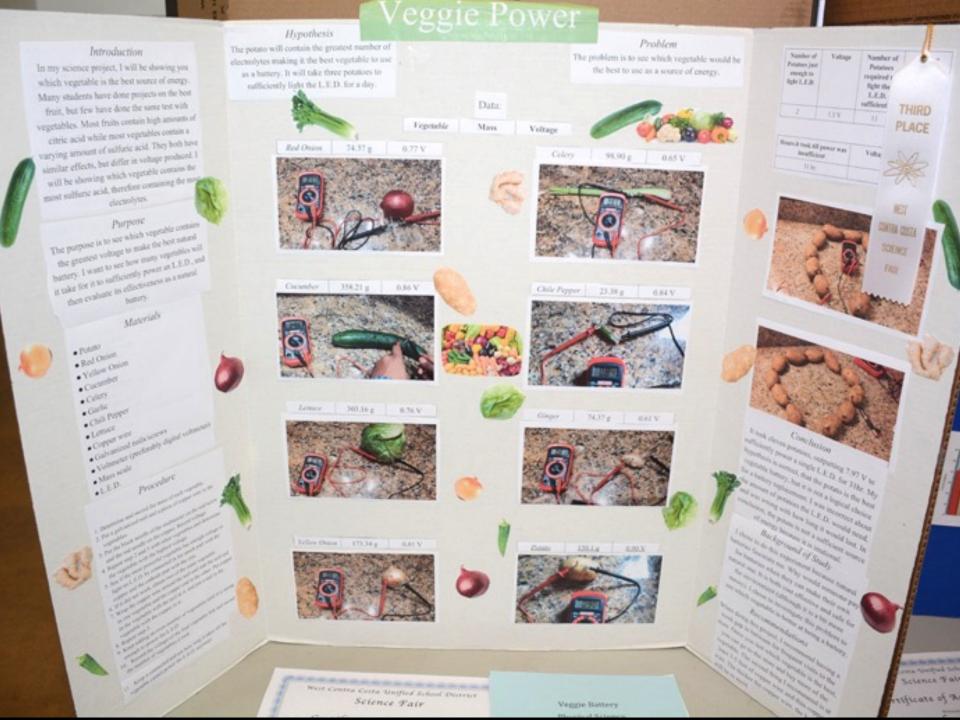
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#### **Orange You Getting Enough** Vitamin C?







#### OBJECTIVE

DESCRIPTION

HYPOTHESIS

MATERIALS

Vitamin C = 17.25 ml = 20 mg = 12.70 mg

DAY 1

29.5 mi × 20 mg - 24.29

#### DAY 2

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THE RESERVE TO SERVE THE PARTY OF THE PARTY	Aspertment NOT ed.	Superindent Ethal.
	PROMPT - 176 m	0 = 20 mg = 1.79 mg

#### CONCLUSION

#### DISCUSSION



#### RESULTS



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BACKGROUND INFO

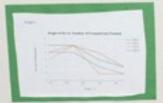
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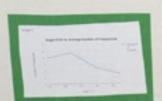
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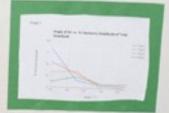


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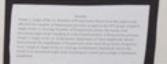












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## 12TH GRADE

## BIOLOGICAL SCIENCE

### SENSE B SENSIBILITY

### PREDATUR PRFY

#### BACKGROUND

HYPOTHESIS

The guppies will use their visual and

chemosensory abilities to detect the presence of the cichlid. Once the cichlid is

detected, the puppers will use the

\$18585F

fast-escape response, which is a rapid

burst of movement away from an attacking

Aguilty, prey have married security anniety to their pain place to desert the present and activity of precious, One of over server necessaries and a street to to detect objects moving may them a car week had a described except where does not do not do not the water to move feet hand have been if where that it would be known of control. and it made and pushes overhead Named, once had somet only a very AMENY ON WAY TO AS MAN (Manufactor) Marcon July Issue of and I seek a very south many and made being the same to the Andrew Land House House House Conditional Owner of Providing Law Law and per seconds a send And the Court of the bor mand

#### QUESTION

Which sensory system do the guppies use to detect the presence of a predutor and how will the guppies respond to the presence of the predator?







#### RESULTS

The data collected showed clear similarities between the response of a single guppy and the responses of the guppers as a group. First, the solo guppy moved close to the transparent barrier, but when the cichild was present, the Svirily quickly moved away from the Barner. and stayed easy. When more pupper sens. placed in the tank, they avoided the burrier. Second, an opaque barrier was placed and the solo gupily showed strong avoidance of the cichid. This shows that guppers respond to character agreets given off by an anticipatory. previetor, streen more puppies were placed in the bank, they youred nelectively close to the barrier and older? Non. This analysis in that they sevent stressed by the chomical signals given self by the current.

#### MATERIALS

- \*1 gallon tank
- •1 Yellow gus
- •1 Blonde Delta
- •1 Black Conf cichlid
- •1 Tequita Sunnise Orks glopy
- Transparent barrier
- •1 Red-gold Turedo puppy

·Opaque bart \*\*\*\*\*

THIRD

PLACE

#### PROCEDURE

proposed and processions.

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#### Abstract:

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Question:

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#### Materials:

Other.

Sharball

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#### TABLE #1

Proposes Values - Danier - Dan

#### TABLE #2

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#### Procedure:

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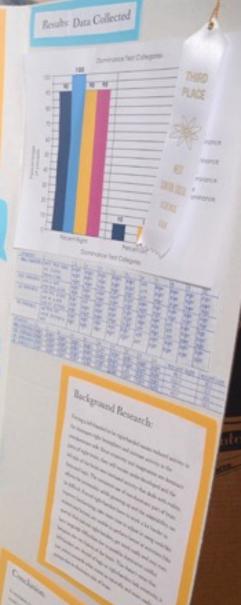
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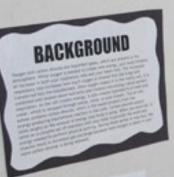
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#### Hemispheres

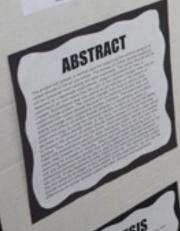
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Annyon	cropes & furston
Paperes & Stores	solution.



## on Athletes







#### **PROCEDURES**







## ATHLETES

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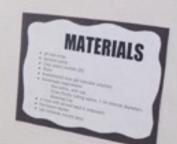


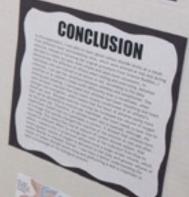














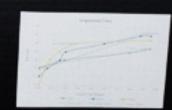


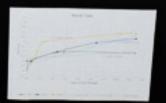
## XYGEN CATALASE + H202 REACTION

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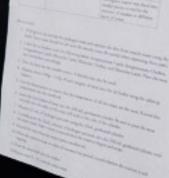






#### Lab Design

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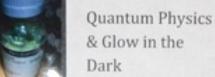
## 12TH GRADE

## PHYSICAL SCIENCE

#### Introduction

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#### Background



El Germi (Rgh School)

Observing changes in luminous est realistics in given in the dark' meterials. [Phophoresomot]

#### Materials

#### Procedure

#### Dasa

#### Struntium Aluminate

Question

Hypothesis



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#### Zinc Sulfide







#### Data Analysis

#### Conclusion

#### Leroy Analysis

Academica A Faribit Research

# BIO-RAD AWARDS

#### Question San peaks have profession and was become

#### Materials

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- Sound presenter applie hade facts.

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#### Introduction

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#### Hypotheses

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The second part of my hypothesis is that people (mate and female under the age of 18 can have mare Personal or than people over the age of 18 I among the Description on principles of the age, year start to have area."

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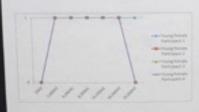
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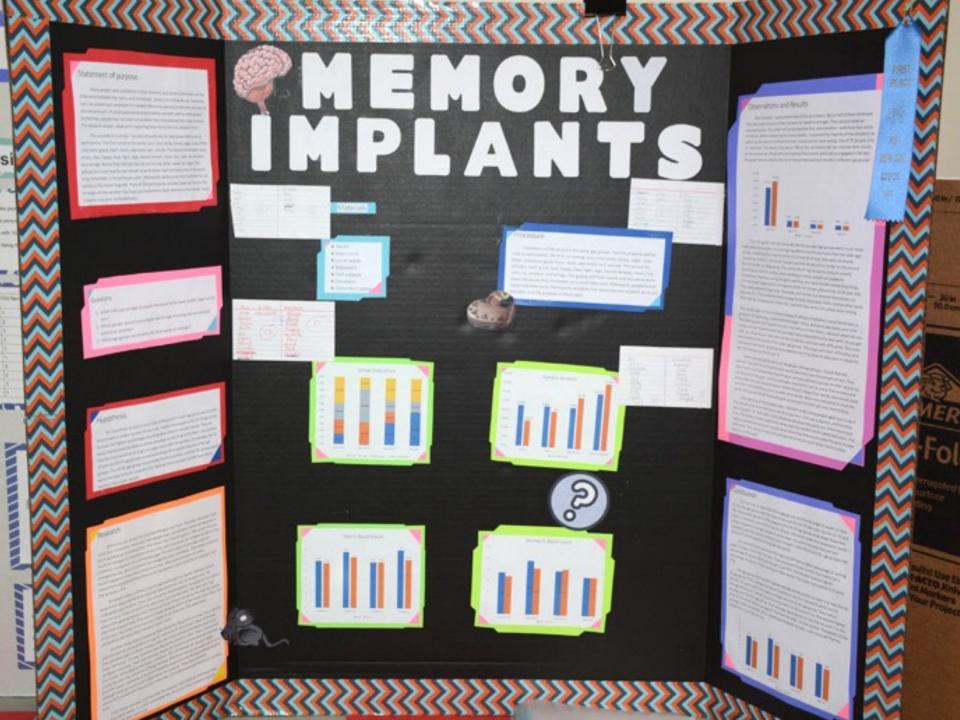


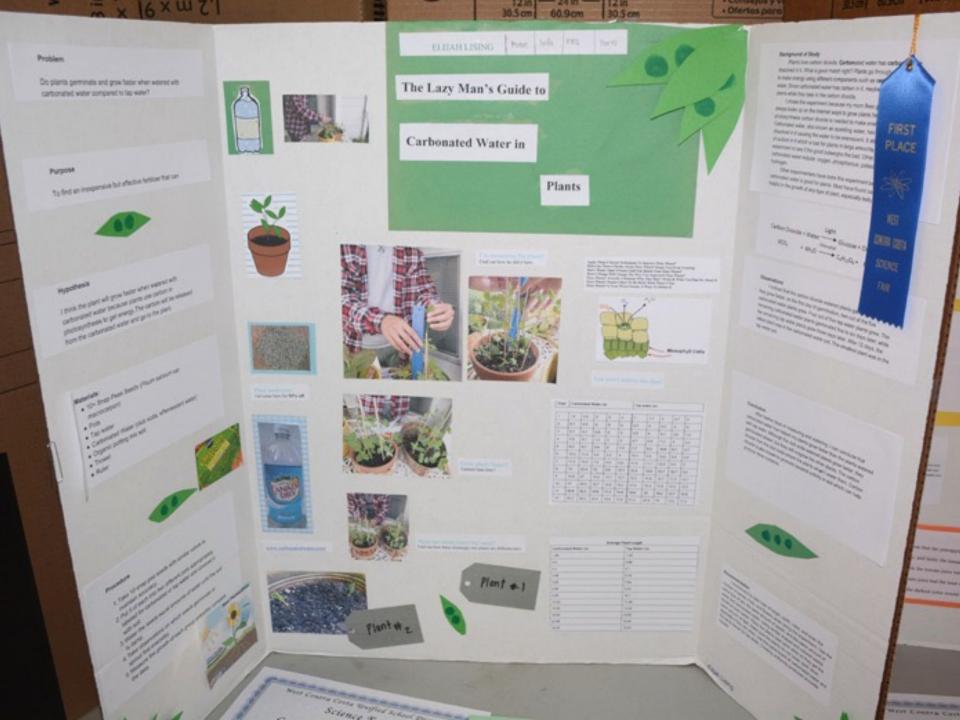






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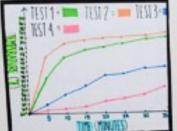
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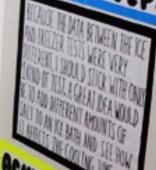


#### RESULTS





## FUTURE STEPS



ACKNOLEDGEMENTS



Charles



### Introduction

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#### Data

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### Materials

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Question

Hypothesis





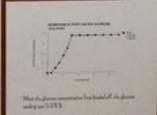
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Procedures

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But however, part to at 70 weeks, the to the time that will be used to time an orbital facility became the time part to when the trackers is presently waiting the trackers are at a constant one.



### PROBLEM

Problem:

ts

Which orange juice has the most Vitamin C?

## HYPOTHESIS

Fresh orange juice contains the highest percentage of Vitamino

## MATERIALS

Wit. Ctablets , 550 mg 2% Lugal's holine subhan, and

South Start - 909







OF 20 ml Standard VItaminc

	1077	Treat 7	Tron a
	Ladine	Tadiac	Taline
Country and to	10	3	BELL (PROPERTY
Cabbalday	0	10	3
Charles States	10	15	15
Doyalaye	16 4	151	15
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Table 3 : Tileston of 20ml Florida's Natural Orange Jaire

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	REAL PROPERTY.	Indust.	Ladin L.
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Section 1	23.7	28.7	31.5
M said	5.0		5.5
Ayers		3	- = t.1

TABLE 2 Tiration Or 20 ML Freshy Squeezed Orange Juice

	19111	Trial 2	thial 3
	Islant &	Solve T	Solime e
Mary Int.	lrs.	227	354
BL W.	0	1L2	23.7
	ME	11.5	11.7
Married West	11.8	5.1	4.7

That I Titleton of 20m Largers Change have

	Sulp	Sul #2	Date:
	bare 3	Interes	Induc
Final Water	29.7	294	33.1
late very	14.3	247	224
Vitane laker USEd	5.2	42	42
Average vouse	5.24	3 71 92	42

Graph of Vit. C concentration the brands of orange

PROCEDURE

Langers Floridas DISCUSSION

Control of fresh control that

The results supported my happentonia that forthly squared story the

# HAL MAGARIAN AWARD

demients use fertilizer on their crops, notati of it is direct the plant it was interned for Ruintal works erfilizer into nearby sheams, and ace week hanco on environment. One of the main ingredents in many lores are nutrients called nitrates, which are often led as "safe" or "satural". Although interiors we not as case as ammonias and rotters, which are count in sme sees, nitrates are much more coercion. Tee high rimals in case stream fauth more coercion. Tee high rimals in case stream fauth more coercion. Tee high rimals in case stream fauth more of the safes also also sour in the extra introdes in the water. Aligne as will solve plant periods by absorbting all the ruilleste in the water, and periods by absorbting all the ruilleste in the water, and proving larger, more permanent plants. Aligne call also four moral of shallow sheams and channels, and went tro find moral of a shallow sheams and channels, and went tro find and other arquaris summals. Elooks gains and most other accounts plants, can use inhalted to all process production are quality plants, can use inhalted to all process are secured to other and the realth indicates the secure of these could the section sheater the provide as stream.

Question

Output

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## **Can Aquatic Plants Remove**

### Fertilizer from water?





#### 10.00

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11.11

# BILL TOBIN AWARD

#### Procedure:

- 1. Cut 1 in along the strel would put
- 2. Pour 1 cop of first acid ons a book. 3. Thread the rubber stopper sets the
- thermometer 4. Measure the temperature of the lest take. at time sero
- 5. Sook the stret wool strip in the acid he lit. seconds.
- 6. Remove and quickly squeeze out excess tiquids.
- 7. Immediately, thread the steel wool onto the thermometer's grobe and place timthe test tube
- II. Quickly wrap the test tabe in a loved to retain say generated beat and place in a cup-spright
- 9. Record the temperature every mason for \$3 minutes they once 5-minutes laws 50. Superat steps 1-9, 2 more times for a total
- 11. Report steps 1-10 for the second and and once for water

Acids, Bases and Neutral Substances --Which Has the **Greatest Corrosive** Effect On Metal?

#### Problem:

Will Acids, Neutral Substances or Bases Cause Metals To Rust Differently?





Nonger			
			Statement Tonoperature



#### Hypothesis:

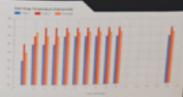
I predict that acids will have the greatest effect on the metals because they have qualities that breakdown molecules and specifically react with metals.



#### Materials:

- \* Glover
- \* Timer
- \* Test Tube (glass)
- \* Stopper
- \* Thermometer
- . Steel Wool (1 in. per liquid)
- \* Scissors
- \* Ruley
- · Acids (Lemon Julos, Vinegar)
- \* Mater
- \* Blase (Soop)
- \* 3 Briefs







#### Conclusion

and he is again suspension and he do inspect on party. The inplica-community of the party ment, below may be degrees, while Equal of the series of the formal manners, in this part of the first fir

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## NORM SERAPHIN AWARD





#### Hovercraft Top

#### Hovercraft Bottom

#### Introduction

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#### Problem

On which senders will a honoright travel for larger DESTR. Landers, London, or Street,

Best! Hovercraft | Surfaces

#### Constructing the hovercraft

- b. Out of the stories plants and tape a most with
- 9. Make a 5/30" tolk in the reside of the 6" wooden that and attack it in the following reduc-
  - S. Perolet wooler
- 16. The prior cases books to can she 2" boles.

#### Procedure

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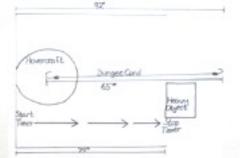
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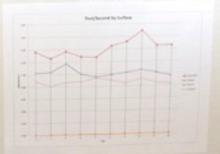




#### Building the Hovercraft



#### Testing Layout







Cement

Gravel

#### Conclusion

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# CONGRATULATIONS TO ALL THE PARTICIPANTS!