Galway Central School

Science FAIR

Grades 3-5 / 6-8

Tuesday, April 4th, 2023

Register by 3/1 using google form
Check email/Galway website

For further questions check with:
Mrs. Darlington, Mrs. Flinton, Mrs. Marotta or Mrs. Derwin

Science Fair Timeline 2023:

This is a suggested guideline to help you develop your project. You may complete your project at your own pace. Required completion dates are starred**.

February 10 - March 1, 2023	Develop question, hypothesis and experiment (May start collecting data and developing project if you are ready)
March 1, 2023	****Registration Deadline**** Register with Google Form check school email/galway website
March 1 - March 31, 2023	Perform experiments; conduct research and collect data; analyze data; write report, create graphs and chart
March 1- March 31, 2023	Check - Ins with Ms. Darlington, Mrs. Marotta, Mrs. Derwin and Mrs. Flinton
March 31, 2023	****Written Report Completed**** by hard copy or electronic submission
April 3, 2023	Complete display and presentation
April 4, 2023	Judging: During the school day Awards: Evening viewing 5-6 MS Gym, Awards 6:15 Auditorium

Optional After School Help

Please sign up on dismissal manager

Elementary Library

2:30-3:25 (late bus or pickup)

3/2, 3/8, 3/13, 3/21

SCIENCE PROJECT STEPS

1. Choose a topic. Be sure it interests you. Don't pick one because you think it will be easy. Talk it over with your parents and when you have decided, inform your teacher, and do not ask to change your topic later. Register using the google form.
2. State your purpose as a question. What is it that you want to find out by doing this project?
3. Research your problem. Look at any books/websites that might help you, make observations by simply looking at things, talk to people, and find out as much as possible about your topic. Write down any ideas you have and where you got them. Also, keep note of all information needed for citing your resources.
4. Form a hypothesis. What do you think is going to happen? Based on what you know or found out from step #3, what do you think the results of your experiments will be? After doing the experiments, it may turn out that your guess was wrong. It is okay if this happens.
5. Plan your project. How will you test your hypothesis? What experiments will you do? How will you measure the results? Where will you keep your information? Be sure to keep notes and write down everything you do and what happens.
6. Collect all your materials. Find a place to keep things where others won't bother them. Let other family members know what you are doing so they don't throw your materials away by mistake.
7. Conduct your experiments. Remember, the more times you do an experiment the more reliable and accurate the results will be. Do each experiment at least three times and get an average of the results for your graph. Use something to measure your experiments: a ruler or yardstick if you are measuring distance, a clock to measure time, etc. Check the measurements to be sure you are correct.
8. Record your data. As you do your experiments, you will want to write down what you saw or found out. Organize this information in an orderly manner. Put the date, time, and any other useful information. Write your measurements clearly.
9. Draw conclusions. What did you learn from your experiments? Have you proved or disproved your hypothesis? You made a guess about what you thought would happen. Now tell what really did happen. You don't lose points if your guess turned out to be wrong.
10. Prepare your titles, charts, graphs, drawings, and diagrams. Make them large enough to see, neat, and colorful.
11. Construct your science fair display. Get your cardboard display board (tri-fold) to show all your work and have your hands free to point to sections when you give your presentation.
12. Prepare and practice your presentation. Be able to tell about what you used what you did in your experiments, and what you found out. Know it well enough that you don't have to read it from the display.
13. Plan a time line so you don't leave everything until the last minute. If you need help, tell your parents and your teacher, the earlier the better.
14. Relax and Enjoy yourself. You will do a GREAT job!

SCIENCE FAIR RULES

1. Number one rule. . . think safety first before you start.

2. Never eat or drink during an experiment and always keep your work area clean.

3. Wear protective goggles when doing any experiment that could lead to eye injury.

4. Do not touch, taste, or inhale chemicals or chemical solutions.

5. Respect all life forms. Animals are not allowed to be used in experiments. Do not perform an experiment that will harm a person.

6. All experiments should be supervised by an adult.

7. Always wash your hands after doing the experiment, especially if you have been handling chemicals.

8. Dispose waste properly.

9. Any project that involves animals, drugs, firearms, or explosives are NOT permitted.

10. Any project that breaks district policy, and/or local, state, or federal laws are NOT permitted.

11. Use safety on the Internet! NEVER write to anyone without an adult knowing about it. Be sure to let an adult know about what websites you will be visiting, or have them help you search.

12. If there are dangerous aspects of your experiment, like using a sharp tool or experimenting with electricity, please have an adult help you or have them do the dangerous parts.

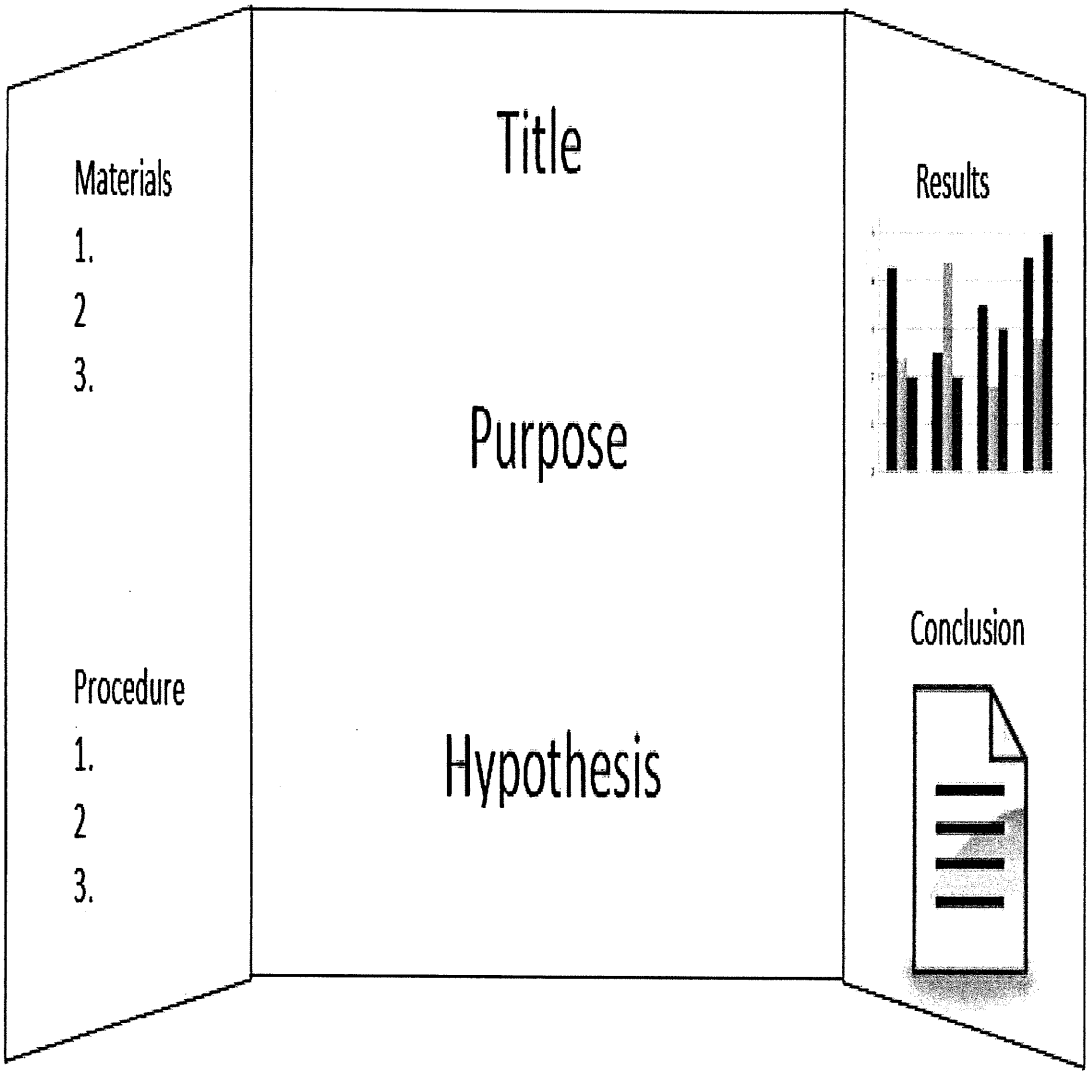
13. Parents should support and guide students. Please, remember that work should be completed by students.

Science Fair Written Report

All written report for a science fair project should include:

- ✓ **Title Page:** The first page in the report should include the title of the project as well as the name and grade of the student.
- ✓ **Acknowledgment:** Here is where you thank everyone who helped to make your project successful (including Mom and Dad.) Everyone that you interviewed, including teachers, scientists, and other experts in the field should be mentioned here. OPTIONAL →
- ✓ **Table of Content:** This page provides the reader with a list of the different parts of the project and the page number on which each section can be found.
- ✓ **Statement of Purpose:** State the purpose of the project **in the form of a question.**
- ✓ **Hypothesis:** You must have a hypothesis before you complete the project. A hypothesis is an educated guess about what you think will occur as a result from completing your experiment.
- ✓ **Research:** This is the part of the report that contains all the background information that you collected about your topic. Any books or articles read from the internet/journal, authorities on the topic that you talked to, or outside materials collected should be summarized in this section. **This section should be written in your own words and NOT copied from your resources.**
- ✓ **Materials:** This is a list of all the materials and supplies used in the project. Quantities and amounts of each should also be indicated.
- ✓ **Procedure:** You will list and describe the steps you took to complete the project. Usually this is listed in a numbered sequence. This part shows the stages of the project so that another person can carry out the experiment.
- ✓ **Observations and Results:** In this section, you will tell what you learned from the project. It is also IMPORTANT to include all graphs, charts, or other visual data (pictures) that helps to show your results.
- ✓ **Conclusion:** This is a brief statement explaining why your project turned out the way it did. You should explain why the events you observed occurred. Using the word "because" is a good way to turn an observation into a conclusion. The conclusion should tell whether the hypothesis was proven or not proven. Also give the reason(s) why you chose to learn more about the subject. You could also add what you know now that you didn't know before you completed your project.
- ✓ **Reference Page:** The bibliography should list all the printed materials the student used to carry out the project. Items should be listed in alphabetical order in a standard format. These website are a great place to go to find the proper way of writing a bibliography. http://www.bibme.org/ , http://www.easybib.com or http://www.knightcite.com Also http://www.Icyte.com lets you "tag" information from Internet sources as you research.

Sample Tri-fold

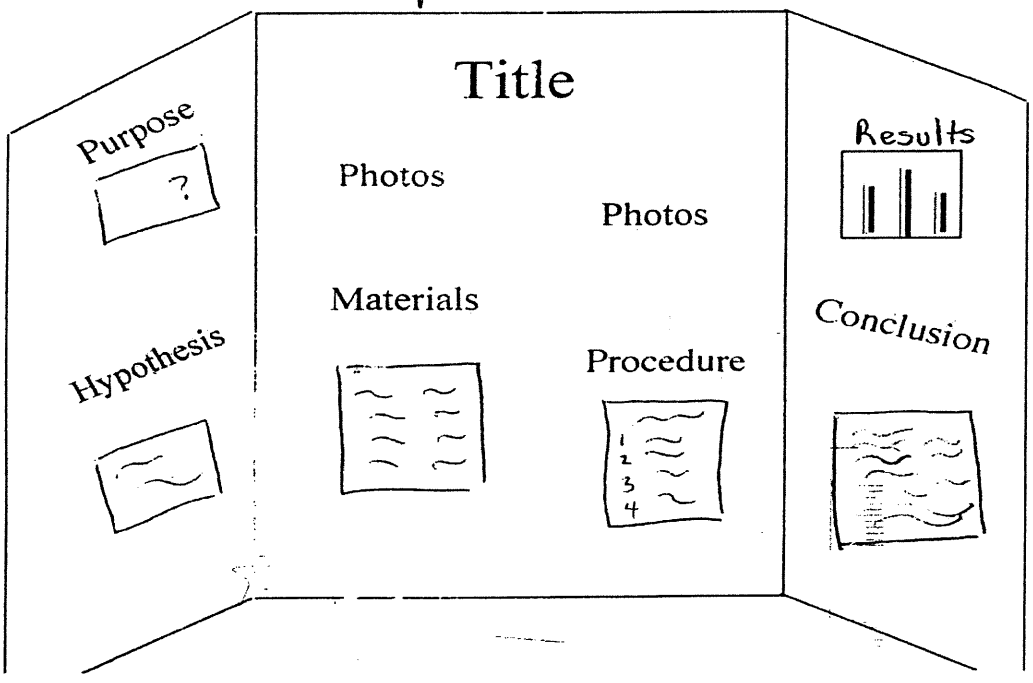


CHECKLIST
PROJECT POSTER BOARD

1. **Statement of Purpose** – State the purpose of the project **in the form of a question.**
2. **Hypothesis** – State the hypothesis (educated guess that answers the project question)
3. **Materials** – List the materials used in the experiment
4. **Procedure** – Describe how the experiment was carried out. Provide a step-by-step explanation of how you conducted the experiment. Include drawings or photographs to help clarify your procedures.
5. **Data/Results** – Present data tables and graphs that show the outcome of your experiment
6. **Conclusion** – compare your results to your hypothesis. Did you findings support your hypothesis or not?

Miscellaneous: Be sure to include name(s)
Include photographs or drawings
This is a visual way to communicate to others so take your time and do a good job.

Sample Tri-fold



Your Science Fair Oral Presentation

A lot of kids are scared of speaking in public or to a teacher/judge. Just imagine they are a fellow scientist who just wants you to share what you learned.

Relax, smile, and have fun. Remember, you are the expert and you had fun doing the project. But if you are a little nervous, we listed some things that you need to do during the presentation.

Helpful Hints:

- Look sharp, feel sharp, and you will be sharp. Dress nice that day, be polite, and speak clearly. You will show that you have confidence. Don't forget to look at your audience.
- Introduce yourself. Point to the title of your display. Tell your audience why you chose to study this.
- State your problem that you studied (your question.) Tell them about your hypothesis (what you thought might happen.)
- Talk about what you learned while researching your topic.
- Talk about the sources (books, websites, and interviews) that helped you understand your topic.
- Tell about your project and explain the steps you took to conduct your experiment. Be sure to mention all the materials involved and point out the pictures that you may have taken.
- If it applies, be sure to show them that you tested your experiment at least 3 times.
- Show them all of the cool graphic organizers that you made, like your tables and charts. Remember to point out the labeled parts of your graph or table to show that you know what it represents.
- Be sure to explain what your data means. Make sure you can read your graphs and tables. Let them know if you were surprised by the results, or if you know what would happen because you studied about it.
- Make sure you sound like an expert on your topic. Always use the appropriate vocabulary especially by using words from the Scientific Method, like: Problem, Hypothesis, Procedure, Results, and Conclusions.

Developing a Testable Experiment

Example Question: Does the type of liquid used to water a plant affect its growth?

Independent Variable
The one thing you will change each time you conduct your experiment.

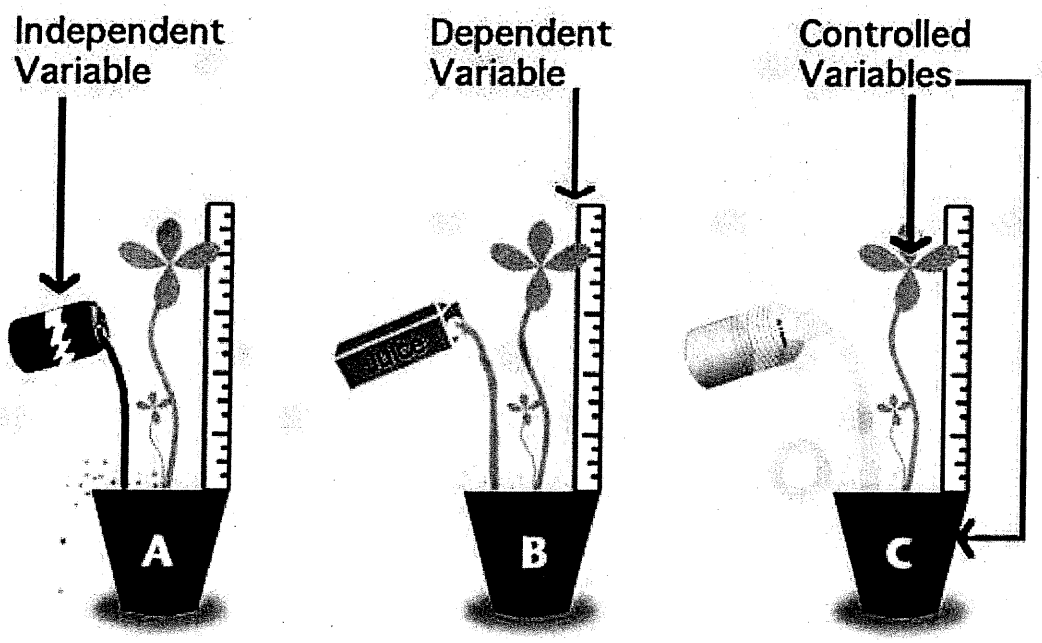
Example: Use a different liquid each time you water a plant.

Dependent Variable
The change you observe and/or measure because of the independent variable.

Example: The health of the plant; the height of the plant.

Controlled Variable
Keep everything else the same so it doesn't affect what you are trying to test.

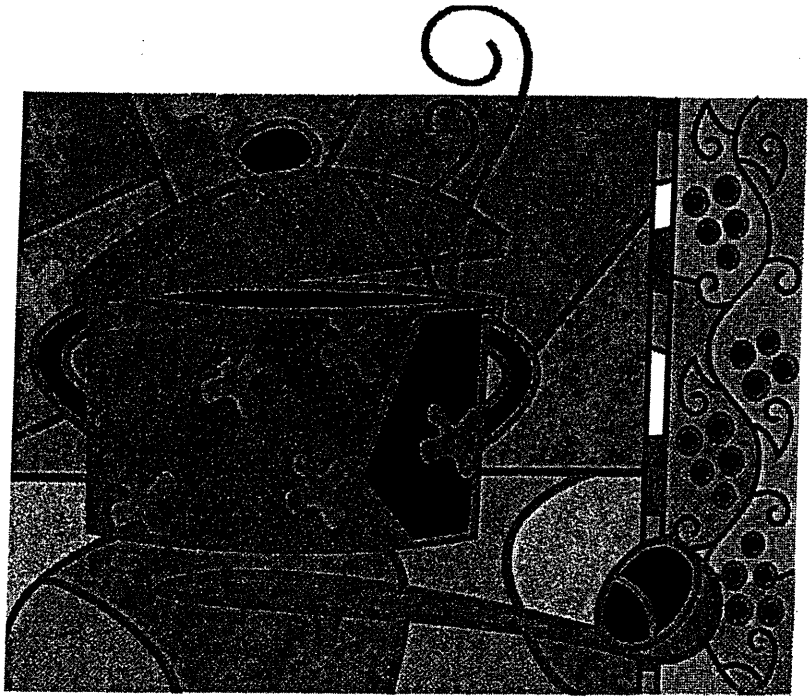
Example: The type of the plant, the size of the pot, the amount of liquid you use to water the plant each time, the amount of sunlight each plant gets.



Example Report

Soups On!

Which canned vegetable soup has the most potatoes?



by: 4F
Glen Oaks School
4th Grade

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Introduction:

In this experiment, we wanted to find out which canned vegetable soup has the most potatoes. We thought that Progresso soup would have the most potatoes. We needed the following materials: paper plates, plastic cups, cans of soup, a colander, a spoon, a toothpick, a magnifying glass, a food scale, a beaker, and a balance.

We researched soup on the internet and by asking a food expert. The experiment that we conducted was that we compared 3 cans of soup. We studied the labels, weighed the ingredients, and took measurements. We found that Progress soup had the most potatoes. Our hypothesis was correct.

Question:

Which canned vegetable soup has the most potatoes?

Hypothesis:

(predict)
We think that Progresso soup will have the most potatoes.

Materials:

- 6 paper plates
- 3 plastic cups
- 3 different cans of soup
- 1 colander
- 1 spoon
- 1 toothpick
- 1 magnifying glass
- 1 food scale
- 1 beaker
- 1 balance

Research:

We researched how canned soups are made. Most soups are condensed and then put in a container. We asked an expert, the manager of a restaurant about his opinion of canned soup. He told me that Progresso soup will have bigger pieces of vegetables whereas Campbell's soup will puree the ingredients. We also looked online to see the variety of canned soups that are available. We found that vegetable soups can be regular or organic. Some soups contain meat such as beef, chicken, or seafood. Some soups also come in different containers such as boxes, pouches, or to-go cans. My control is that I will only use canned non-organic/regular soup without any meat added. The changes will only be the brands of soup.

Vocabulary:

- Condensed: to remove some liquid in order to save space
- Puree: to chop very finely or put through a blender
- Organic: food using non-processed ingredients

Procedure:

1) Label the plates and cups: vegetable 1, vegetable 2, vegetable 3, potato 1, potato 2, potato 3.
2) Examine the label of each soup can. Check ingredients and ounces of can.
3) Open the three cans of soup.
4) Empty the contents into a colander to get rid of any liquid.
5) Use a spoon to take out the vegetables and put them in a cup.
6) Repeat steps 4 & 5 with the other two can.
7) Empty the cups on 3 different plates a little at a time.
8) Pick out the potatoes using a toothpick and place them on a different plate. Do this until the cup is empty.
9) Repeat step 8 with the other cups.
10) Check with a magnifying glass for any small pieces of potato left in the vegetable plates.
11) Weigh each potato plate on the food scale.
12) Record the weight of each plate.
13) Pour the potatoes in the beaker.
14) Record the measurement.
15) Empty the beaker and put the potatoes back on the plate.

16)Repeat steps 13, 14, & 15 with the other plates.

17)Put the plates on the balance.

18)Record which one is the heaviest.

19)Count the pieces on each plate.

20) Record the numbers.

Results:

	Soup 1 - Campbell's	Soup 2 - Country Delight	Soup 3 - Progresso
Weight in Ounces	1.30 oz.	2.25 oz.	2.37 oz.
Measurement in beaker	2 oz.	3.16 oz.	3.67 oz.
Heaviest	3rd	2nd	1st
Number of potatoes	28 pieces	29 pieces	26 pieces
Ingredient Order (# on list)	3rd	2nd	2nd
Total Ounces of Soup Can (without liquid)	10 oz.	10 oz.	10 oz.
Percentage of Potatoes	13%	22%	24%

*Recommend including a graph and pictures.

Conclusion:

We thought that Progresso would have the most potatoes. We were right! We found that a can of Progress soup has 2% more potatoes than Country Delight and 11% more than Campbell's. We also determined the size of the potatoes in each soup and Progresso soup potatoes are larger in size. These potatoes weighed and measured more, but there were fewer pieces when comparing to the other soups.

References:

Websites

www.amazon.com

www.foodnetwork.com

www.campbellsoup.com

Expert

Rick Michaels

General Manager of Italiano Restaurant (Chicago, IL)

How did we come up with our project idea?

Our favorite part of vegetable soup is eating the potatoes. We wanted to find out which soup has the most potatoes.

What did we learn from our experiment?

We learned that even the simplest experiments take a lot of time and careful planning. The soup with the most potatoes was Progresso. It also had the largest pieces.

How close were our hypothesis and conclusion?

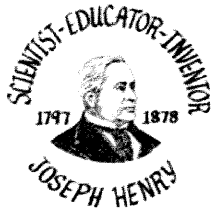
We guessed that Progress would have the most potatoes and we was right.

What did you learn from this experiment?

We learned that by studying the labels of a soup can, you can tell a lot about what's inside. The two cans that listed potato second on their ingredients list were also the two that had the most potatoes.

What was the most interesting part of my project?

It was when we looked carefully at the ingredients of the soup cans. We liked using the magnifying class to search for more potatoes.



JOSEPH HENRY SCIENCE FAIR

Judge's Score Sheet: Project _____

Criterion	Unsatisfactory (0)	Acceptable (4)	Good (7)	Excellent (10)
1. USE OF SCIENTIFIC METHOD The scientific method is used to answer the project question. Research and procedure are evident in experiment				
2. HYPOTHESIS The hypothesis is clearly stated, testable, and understood by all students involved with the project.				
3. DATABOOK The databook is available and contain notes and data as the project unfolded. It does not appear as if it was done after the project just for the Science Fair.				
4. DATA PRESENTATION The data and graphs presented are organized and appropriate for the project. The metric system is used throughout the project.				
5. MEASUREMENTS The measurements used are appropriate for the hypothesis being tested. Multiple trials are present. Measurements are recorded neatly and logically				
TOTAL SIDE 1				

Criterion	Unsatisfactory (0)	Acceptable (4)	Good (7)	Excellent (10)
6. MATERIALS Materials used were appropriate for the hypothesis being tested. Safety precautions are being followed throughout experiment. No vertebrates, surveys or hazardous materials are used.				
7. SCIENTIFIC DISPLAY Display contains the following sections: Title, Hypothesis, Introduction, Results, Conclusions, Materials, Methods and Future Questions.				
8. AESTHEIC DISPLAY Display is neat, attractive and easy to understand. Display contains a 3D aspect. School name does not appear on the poster.				
9. PROJECT DISCUSSION All students can explain what, how and why procedure was done. All students can explain any modifications they would make to procedure in future trials.				
10. FUTURE DIRECTION One or more new questions can clearly be identified that arose from project.				
TOTAL SIDE 2				
TIEBREAKER-SCIENTIFIC INGENUITY Rate the uniqueness of this project. This is not tallied into the final score. It is used only as a potential tie breaker.				

Total Score:

THANK YOU

Please drop-off form in Judges box in PDR. All scores are kept confidential; rankings only are announced.