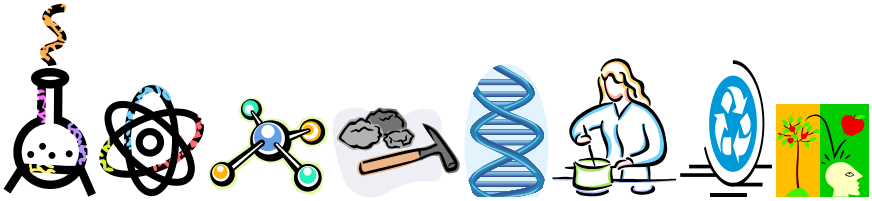
Fall Project: The Science Fair



Dear Student, Parents, and Guardians,

It is that time of year that I introduce the fall project. Students will perform a scientific investigation focusing on a topic relating to science, mathematics, engineering, or technology. Students will communicate their experiments in written format (display) and relate their topics to real-world applications and careers.

The due date for this assignment is:

FRIDAY, JANUARY 27, 2012

The Last Day of 2nd Quarter

[NO EXCEPTIONS!]

Students will have over two months to research, perform their experiment, do written analysis, and prepare displays. Student science fair projects will be on display on Open House Night: [May 22, 2012].

Requirements:

1. **Choose a topic of interest to you.**
2. **Make sure that the topic you choose is MANAGEABLE in regards to your time frame and work load.**
3. **The science investigation has to follow the procedure of the scientific method. That is, you must state a problem/purpose, do background research, conduct an investigation, write a full lab report, display the lab report, and relate it to a real-life application and career.**
4. **You must adhere to all safety protocol when conducting an experiment.**
5. **You may work on your own or with another student in Ms. Henry's class (Periods 2-5). But, be aware that when you work with another student, both of you are responsible for the project's content and display. You will both receive the same grade. If you know this will be a problem, do the project on your own.**

TOPIC SELECTION: Choosing a topic can be difficult. I highly recommend the website: www.sciencebuddies.com. It has a wealth of topics for all interest categories. You may opt to use the "Topic Selection Wizard" to find a topic suited for your interest or you can simply choose from the list of categories provided. In addition to interest, make sure to

choose a topic that is manageable, time-wise. Many of these activities can be done in less than a day. Most equipment is easily accessible. If needed, you may ask for lab equipment to borrow for your experiment. If the topic has an asterisk (*) symbol next to it, it is not a "ready-to-go" lab. You will have to construct the lab from scratch. You are welcome to do so if you want to take on the challenge, but if not, you can simply choose a "ready-to-go" lab (without the asterisk sign).

You will create a display board contains the following sections:

- **Title**
- **Abstract**
- **Safety Guidelines**
- **Problem/Question**
- **Background Research**
- **Variables/Comparisons**
- **Hypothesis**
- **Materials/Equipment List**
- **Procedure**
- **Observation/Data Tables/Graphs**
- **Conclusions/Reflection**
- **Real-World Connections**
- **Acknowledgements**
- **Bibliography**

WRITTEN REQUIREMENTS:

1. **Title [Statement]**
   - **This will be at the topic of your display board in large print lettering. Viewers should see your title clearly from a distance.**
2. **Abstract [One Paragraph]**
   - **An abstract is an abbreviated version of your science fair project. It is a summary of your whole experiment in one paragraph. For most science fairs, it is limited to a maximum of 250 words. The abstract appears at the beginning of your report/display (even though you write this last).**
   - **It will include why you chose this experiment, the problem/purpose, your hypothesis, your procedure (condensed), your results, and your conclusion.**
3. **Safety Guidelines [1/2 to 1 pages]**
   - **Make sure you are following ALL safety guidelines**
   - **Make sure that you have an adult present when doing actual testing.**
   - **Use common sense when doing your investigation.**
   - **Include any safety symbols/protocol followed during your investigation.**
4. **Problem/Question [One sentence]**
   - **Write the problem in the form of a question.**
   - **If there isn't a problem, then state the purpose of the experiment in statement format.**
5. **Background Research [1-2 pages]**
   - **Look up terms that are relevant to your investigation.**
   - **What are some theories and concepts behind your experiment?**
   - **Provide background on the history of your topic. Look at history, past experiment, how things work, etc.**
   - **Encyclopedias can provide good background information.**

- **Websites, journals, television shows, news report, and experts in the fields all count as research.**

6. **<u>Variables [1 paragraph]</u>**
    - **Identify what you are testing/the cause [Independent Variable]**
    - **Identify what is affected by this change/the effect [Dependent Variable]**
    - **Identify your controlled variables [What you are keeping the same]**
    - **If you are not testing variables, but simply comparing data, then state what you are comparing.**
7. **<u>Hypothesis [1 statement]</u>**
    - **This is your educated guess.**
    - **Write in "If…then…" format [If I change this…., then this will happen].**
    - **If you are not testing variables (comparing), state what you think the outcome will be.**
8. **Materials/Supplies [1/2 to 1 page]**
    - **List what you used in your experiment. Bulleted list ok.**
    - **Include a short description/function for each material.**
9. **Procedure [1-2 pages]**
    - **Detailed description of your procedure.**
    - **Step-by-step instructions with specifics emphasized.**
    - **Procedure should be written so that anyone could do this experiment using your instructions.**
    - **You can add a flow chart visual if you wish.**
10. **Observations/Data/Results [1-3 pages]**
    - **Written/Visual Observations**
    - **Photos**
    - **Diagrams**
    - **Data Tables**
    - **Calculations [Showing sample formulas]**
    - **Graphs [Appropriately labeled and scaled]**
11. **Conclusion/Reflection [1-2 pages]**
    - **Analyze Data**
    - **Form your conclusion [relate back to your hypothesis]**
    - **Address any errors**
    - **Bring in ideas for future experiments.**
    - **State whether or not you enjoyed this experiment and provide an explanation.**
12. **Real-World Connect [1-2 Pages]**
    - **How does your experiment tie into the "real-world"?**
    - **List one career that relates to your investigation. Provide a short description of that career.**
    - **Use format like in your text [See "Real-World" Science at the end of each chapter].**
13. **Acknowledgements [1 paragraph]**
    - **Opportunity to thank those who helped you with your project.**

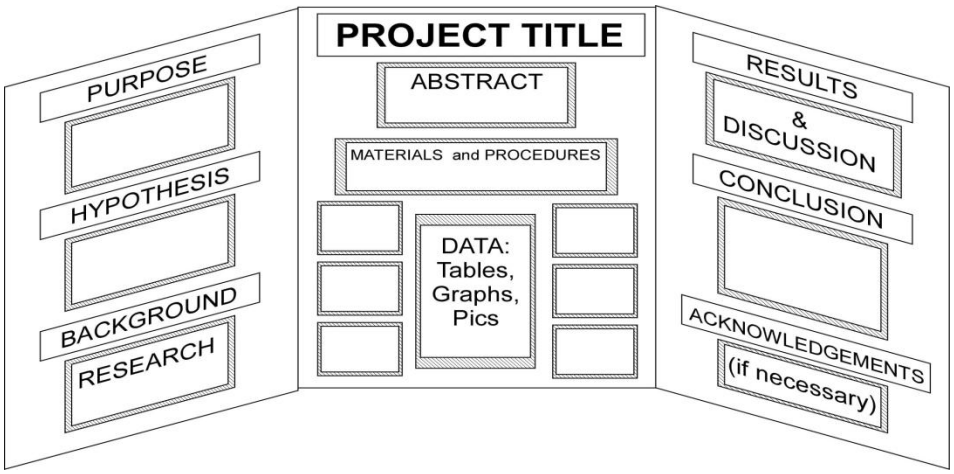
14. **Bibliography [1 page]**
    - **Use format in your planner [MLA style]**
    - **The minimum number of sources is 5!**
    - **Your sources can be combination of websites, encyclopedias, journals, newspapers, interviews, television shows, etc.**

FINAL DISPLAY

When you are finished with all of your written materials, assemble them to a display board. You can find these at Staples, Wal-Mart, Office Depot, Target, etc.

Make your board neat, legible, and include illustrations. The board should follow a logical order.

See Sample Below: Remember to include ALL required sections in a logical order.



Please check my website at www.funphyz.com for

- **Helpful websites**
- **Tutorials on how to write an abstract, procedures, conclusions, etc.**
- **How to display data and make computer-generated graphs.**
- **I will also include timelines and rubrics.**

Phase 1: Science Fair Timeline: 170 points will be posted for 2nd Quarter

All task worksheets will be handed out before the due dates.

Check	Task	Point Value	Due Date
	Acknowledgement Form	**10 points**	**Thursday, 11-10-2011**
	Topics of Interest Form [Top 3]	**15 points**	**Friday, 11-18-2011**
	Final Topic Selection Partner/Individual Sign-up Checklist	**20 points**	**Wednesday, 11-30-2011**
	Research Sources Check	**25 points**	**Friday 12-9-2011**
	Plan Experiment & Collect Supplies	**N/A**	**Should be completed by: Friday, 12-2-2011**
	Rough Draft I • **Title** • **Purpose** • **Variables** • **Hypothesis** • **Materials** • **Procedure** • **Background Information**	**40 Points**	**Friday, 12-16-2011**
	Rough Draft II • **Data/Graphs** • **Analysis** • **Conclusion** • **Real-World Connections** • **Acknowledgements** • **Bibliography** • **Abstract**	**60 Points**	**Friday, 1-13-2012**
	Experiment should be completed [Check length of time to conduct expt.]	**N/A**	**Should be completed by Monday: 1-9-2012**
	Written Sections Final Draft	**N/A**	**Should be completed by, Friday: 1-20-2012**
	Assemble Final Display	**N/A**	**Should do week of 1-23-2012**
	Final Display	**200 Points [Posted to 3rd Q Grade]**	**Due by Friday, 1-27-2012**

Phase II: The Final Display: Grades posted for 3rd Quarter

Topic: _____

Name _____

Name _____

Task	Points Possible	Points Earned	Comments
Title	**5**		
Abstract	**10**		
Safety Guidelines	**10**		
Problem	**10**		
Background Research	**20**		
Hypothesis	**10**		
Variables	**10**		
Materials	**10**		
Procedure	**10**		
Data/Graphs/Observations	**20**		
Conclusion/Reflection	**20**		
Real-World Connection	**20**		
Acknowledgements	**5**		
Bibliography	**10**		
Spelling, Grammar, Punctuation, Clarity	**15**		
Neatness, Visual Presentation/Illustration (with Captions)	**15**		
Grand Total Posted on 3rd Q Grade	**200 Points**		

Name: _____ **Period:** _____

SCIENCE FAIR – Acknowledgement Form

10 points due Thursday, November 10, 2011

- **I have read and understood the requirements and timeline for the Science Fair project.**
- **I understand that 170 points will be posted to the 2nd Quarter grade and that 200 points will be posted to the 3rd Quarter Grade.**
- **I understand that there are NO EXCEPTIONS to the final due date for this assignment.**
- **If I cannot make submit the assignment on January 27, 2012, I will have a parent/guardian submit the display.**
- **I understand that if I work with another student on this assignment, that both of us will receive the same grade. No changes after sign up.**
- **I understand that once I choose a final topic, I must adhere to that topic for the final display.**
- **I understand that the only extra credit for this assignment will be entering and competing in the 2012 Sacramento Regional County Science Fair on March 17, 2012. Point value TBD.**
- **I will practice academic honesty. I understand that plagiarism will not be tolerated and will result in a zero grade.**

Student Name (Print) _____

Student Signature _____

Parent/Guardian Signature _____