Science Fair Project Steps/Due Dates

Complete ALL of these steps in your LOG BOOK (Refer to "What is a Log Book?")

1-State a Question/Choose a Topic: (refer to Choosing a Science Project Topic Handout). ***Aug 3rd – Aug 12th***

- Your topic should be something you are interested in and can investigate yourself.
- The topic must be written as a QUESTION: **What is the effect of _____ on _____?**
  (Independent variable) (Dependent variable)
- Your topic should be an investigation where you can run at least three trials and each trial can be measured in the same way.
- Topic categories: Behavior and Social Science, Chemistry, Computer Science, Earth Science, Engineering, Energy and transportation, Environmental Science, Mathematical Science, Microbiology, Physics, Plant Science

DUE Aug 19th – Testable Question (Science Proj. Proposal Form) & Log Book Check

Aug 22nd

2-Research Your Topic:

- Collect background information about topic in preparation of writing your hypothesis, purpose and experimental procedure. Sources may include the internet, science magazines and library books. Do not use Wikipedia as a source.
- Make sure you CITE ALL references. You must have them in the bibliography part of your research paper.

3-Develop a Hypothesis and Purpose:

- The hypothesis is an educated guess or prediction of what you think will happen during the experimentation written as a IF and THEN statement.
  If = the cause
  Then = the effect
  "If a pansy is placed in natural light then it will grow five centimeters higher than a pansy grown in the artificial light".
- Use background information to help you prepare this prediction. The results do not have to support your hypothesis in order for the experiment to be a success.
- The purpose is what you want to find out and why.

Due Aug 29th – Hypothesis & Purpose (Science Proj Proposal Form) & Log Book Check

4-Design an Experiment and Complete Science fair Paperwork:
Aug 31st – Sept 2nd

- Write down the STEP-BY-STEP directions for testing your hypothesis. Make sure the procedures are numbered and clear so another investigator could repeat your experiment.
- Make a complete list of all the materials needed to do the experiment. Remember to be specific with amounts, size, type, etc and use SI Units.
- Indentify the variables in your experiment.

- *The independent variable (manipulated variable), which will be changed and tested will be:_____*
- *The dependent variable (responding variable), which will be observed and measured and will change as a result of the experiment, will be: _____*
- *The control, which will receive NONE of the variables will be: _____*
- *The constant variables(all of the factors and conditions that will be kept identical for all the trials) will be:_____*

- Complete and obtain parental approval of **ALL** required Science Fair forms. Teacher will provide.

DUE Sept 9th – Variables Information & Experimental Procedure (Science Project Proposal Form), Log Book Check and Science Fair forms

5- Perform your Experiment/Test your Hypothesis: Sept 12th

- Once all signed Science Fair forms have been submitted to teacher, perform your experiment as planned.

6-Collect the Data: *Sept 19th – Oct 3rd*

- Collect and record all data accurately by observing, measuring and describing.
- Include materials you are using, length of time for tests, controlled, independent and dependent variables.
- Keep detailed notes on everything you observe while conducting your experiment. You may even take pictures or make sketches of your observations.

Oct 5th – Log Book Check

7-Organize and Interpret the Data: *Oct 5th – Oct 12th*

- Decide what the results mean. Try to find explanations for your observations.
- Make Graphs or tables to represent your data.

8-Draw Conclusions: *Oct 17th – Oct 21st*

- Read your hypothesis and explain how the results support or do not support it by answering these questions in paragraph form (write conclusions in past tense):
  -What was investigated?
  -Was the hypothesis supported or not supported by the data?
  -What were the major findings?
  -How did your findings compare with other researchers?
  -What possible explanations can you offer for any errors in your findings?
  -What recommendations do you have for further study and improving the experiment?
  - What are some possible applications of this experiment?

Oct 24th – Log Book Check

9-Finish your Research Paper and Develop a Presentation: Oct 25th – Nov 8th

- Using your Log Book and the "How to Write a Research Paper" document, complete your Research Paper
- Create a presentation of your choice that can be delivered to your peers. The presentation is to be a 3-5 minute summary of the steps of your project. It can be a PowerPoint Presentation, a video, a poster board or anything approved by our teacher.

10-Turn in Science Fair Project and Present to Peers on Wed Nov 16th

- Log Book to teacher
- Research paper to teacher

Websites

Georgia Science and Engineering Fair Information and Forms

http://apps.societyforscience.org/isef/students/wizard/index.asp
http://www.georgiacenter.uga.edu/oasp/ga_science_fair.phtml

Science Fair Websites

www.sciencebuddies.org
http://www.all-science-fair-projects.com
http://www.twingroves.district96.k12.il.us/ScienceInternet/TopicChoices.html
http://www.ipl.org/youth/projectguide/
http://www.ri.net/schools/East_Greenwich/Cole/sciencefair.html
http://www.isd77.k12.mn.us/resources/cf/ideas.html
http://faculty.washington.edu/chudler/fair.html

General Science Websites

http://www.newscientist.com/
http://www.sciencenews.org/
http://www.sciencedaily.com/
http://www.americanscientist.org//amsci.html
http://www.sciencemadesimple.com/news.html
http://www.eurekalert.org/
http://dsc.discovery.com/news/news.html
http://pubs.acs.org/journals/tcwoe7/index.html
http://www.popsci.com/popsci/
http://scitechdaily.com/
http://www.studygs.net/
http://www.science.glencoe.com
http://www.spartacus.schoolnet.co.uk/REVscience.htm
http://www.svsu.edu/mathsci-center/sciencesites.htm

Making Graphs

http://nces.ed.gov/nceskids/Graphing/

Bibliography

http://www.easybib.com/
http://www.aresearchguide.com/11guide.html