Freedom Elementary School

8th Annual Science Fair

April 12, 2011

Dear Parents:

Thank you for your interest in the Freedom Elementary School 8th Annual Science Fair sponsored by the Freedom PTA! We hope that this project will be educational for your child. More importantly, we hope it will be a lot of fun and get your child interested in the wonderful world of science. This handbook will explain what the Science Fair is all about.

Children are natural scientists and enjoy observing and questioning the world around them. We want to tap into this natural curiosity and foster a lifelong love for science. The skills used to analyze a scientific problem (observing, classifying, collecting data, measuring, graphing and interpreting data) are skills that easily transfer to other subject areas.

The Science Fair will take place Tuesday, April 12, 2011 at 6:30 pm. Each student will make a display for this event, outlining his or her project. The Science Fair will be non-competitive and the participating students will receive a medal for their efforts. During the evening of the Science Fair, the students will present and explain their projects to visiting scientists. Therefore, the students may want to practice explaining their projects to parents and friends.

In this handbook you will find an outline of the Scientific Method, some tips on what makes a good project, some resources to get help and a sample project.

In the beginning of March we will send home a flyer asking you for the title or the project question, and whether you would like to purchase your display board through us.

If you have any questions don't hesitate to contact Ellen Lewin at (410) 552-5767 or ellen_lewin@msn.com or Mrs. Castner, Mrs. Will or Mrs. Finch at Freedom at (410) 751-3525.

The Scientific Method

A Science Fair project is a **test** or **experiment** you do to find an answer to a question. It is not research showing what you know about something. It is not a model, demonstration, or collection.

Each project should follow the steps of the Scientific Method.

1. Question: What you want to find out. Select a variable (something you will change or vary) that will help you find the answer.

2. Hypothesis: Statement of what you think will happen in your test; it is your best guess.

3. Materials: A list of items you will need to complete your experiment.

4. Procedure: Step-by-step directions to conduct your experiment.

5. Data: Collect and record data systematically showing what happened in your experiment. Use charts and/or graphs if necessary to organize and present your data.

6. Results: Statement interpreting your data.

7. Conclusion: Answer your question. Was your hypothesis correct?

What makes a good project?

1. Find a topic you are interested in.

2. A good project is an experiment. Make sure you can do a test to find an answer to your question.

3. You should be able to do the project with only a little help from your parents. Having someone else help too much takes some of the fun away and you do not learn as much.

4. Your project follows the format of the Scientific Method.

5. The experiment is repeatable. If possible, repeat your experiment. The more times your experiment is repeated, the more reliable your results are.

6. Tailor the experiment to your grade level and ability. A 1st and 5th grader could both tackle the question "What kind of soil is best for plant growth?" A 1st grader might use two different soil types where the 5th grader could use a variety of soils.

7. Create a neat display of your project showing that you used the Scientific Method.

8. Practice explaining your project to parents and friends.

Remember!
Do not get upset if your experiment demonstrates that your hypothesis is incorrect. In the past some of the most important experiments have been those where the hypothesis was proven incorrect.

Resources

- Public library
- Ms. Voight in the Media Center has plenty of books about science projects
- www.sciencebuddies.org
- www.ipl.org/div/projectguide/
- www.homeworkspot.com/sciencefair/
- www.all-science-fair-projects.com

Sample Project

1. Question: Does the weight of an object affect how fast it will fall?
2. Hypothesis: I think a heavier object such as a bowling ball will hit the ground faster than a lighter object like a soccer ball.
3. Materials: Soccer ball, bowling ball
4. Procedure:
    a) Drop the bowling and the soccer ball at the same time.
    b) Record which object hits the ground first.
5. Data:

Bowling ball	Soccer Ball	Same time

Table 1: Number of times object hit the ground faster

6. Results: In each trial both balls hit the ground at the same time.
7. Conclusion: My hypothesis was not supported. The heavier object hit the ground at the same time as the lighter object.

Note: All of this information would be included/presented in the display for the Science Fair.

Display Guidelines

Once you asked your question, conducted your experiment and you know your results you are ready to construct your display.

You may purchase your display board at the school for $3.00 but you can also get it in probably every office supply store or you can even make one out of cardboard by yourself. The display board should not be wider than 48" due to the limited space. It also needs to be free standing.

The traditional way to set up a display board for a Science Fair is with a 3-panel configuration of the Scientific Method. The display board is folded into three panels, the Left Panel, the Center Panel and the Right Panel. This structure not only organizes your project it also makes the board free standing!

Organize your board according to the following outline:

Left Panel	Center Panel	Right Panel
Question Hypothesis Experiment (Material & Procedure)	Title Data (Illustrations, Photos) (Graphs, Charts)	Results Conclusion

Tips:

- Your name should be at the top of the Center Panel so that the judge will find you.
- The title and other headings should be neat and large enough to be read at a distance of about three feet.

- You may write your board by hand or use a computer. Write your paragraphs on white or colored paper, cut it out and glue it to the board.
- Before you glue everything down, be sure to plan out your board. It will save you from frustrating mistakes.
- Please remember that your board is telling your story. Make it interesting and be sure that people can understand what you did.
- You must show that you used the Scientific Method.

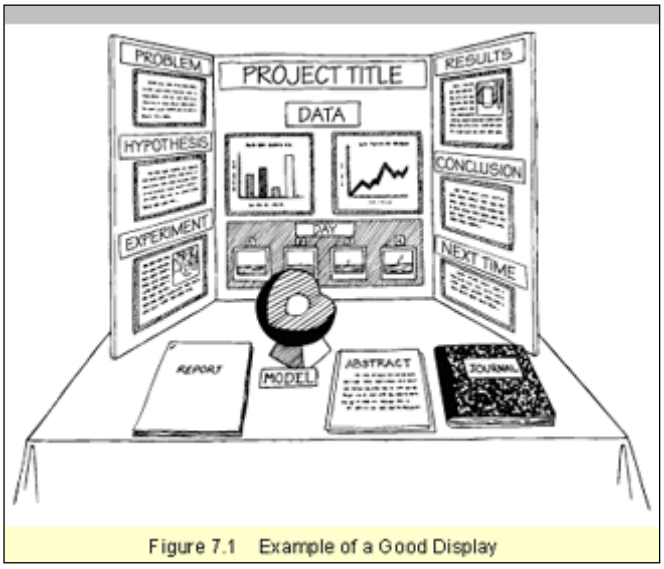

Figure 7.1 Example of a Good Display

From *Janice VanCleave's Guide to the Best Science Fair Projects*

Safety

Basically, anything that is or could be hazardous to others is prohibited and cannot be displayed. Please note that models or photographs can be used instead of items that are restricted. Your experiment does not have to be reproduced at the Science Fair. Your display board will showcase what you have completed at home.

To keep our Science Fair safe and enjoyable, the following items are restricted from display:

- Glass jars or containers
- Animals/reptiles
- Open or concealed flames
- Sharp items (knives, needles, etc.)
- Combustible materials

Presentation

Remember to practice explaining your project. Start by practicing alone and then in front of someone else. You want to understand your project completely so that you can clearly explain each step of your experiment. Practicing at home will help you to be relaxed and comfortable and, most important, will help you to have fun at the Science Fair.

If you have any questions talk to Mrs. Castner (4th grade teacher), Mrs. Will (3rd grade teacher) or Mrs. Finch (5th grade teacher) at school. Or you can contact Ellen Lewin at (410) 552-5767 or ellen_lewin@msn.com (Science Fair chair/PTA).