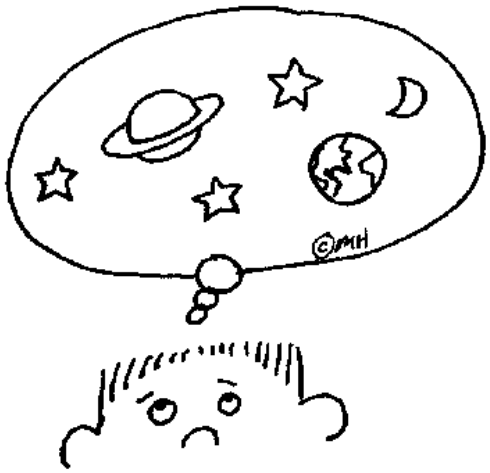

Science & Social Studies Fair

Mitchell Elementary

Project Guide
2012
Fair Date: February 1st

Mitchell Elementary PTA®

everychild. onevoice.

A Note to Parents…

This handbook provides a guide for students to put together a successful science or social studies project. It should help your child think of an idea and put together a project that is interesting to him/her. The main goal is to get your child excited about science or social studies, and learn to apply the scientific method!

Parents, your job is to guide your child towards a project appropriate to his or her developmental level. Experiments and research may be very simple or complex, depending on the student's question, age, and level of interest. What matters most is that they *understand* the project, feel like a scientist, and *enjoy* the process.

***If your child is ready to commit before the holidays, please turn your commitment form in by Dec. 15th. If not, the last deadline to commit is Jan. 5th.**

Helpful Tips

- Encourage your child to pick a topic they are interested in and excited about for their project.
- Use the scientific method as much as possible.
- Follow the project schedule for an easy step-by-step process to the finished project.
- For those younger students who are not yet typing on the computer or who have a difficult time writing all the information by hand; the student can dictate their thoughts to a parent who is typing on the computer keyboard.
- While the clarity and organization of the presentation is important, the judges will most be looking for your child's overall understanding of their project.
- Enjoy the process of learning more about science, social studies, and the scientific method!

Be a Scientist! Be a Detective! Be an Inventor! Be a Sociologist!
Ask Questions! Do Research! Find Ideas!
Perform Experiments! Conduct Surveys!
Have Fun! Find Answers! LEARN!

Congratulations on joining the Science and Social Studies Fair! Science and social studies can be more fun when you ask your own questions and find your own answers. The Mitchell Elementary Science and Social Studies Fair is an exciting opportunity to experience actually *being* a scientist or a sociologist.

What is a science or social studies project?

A science or social studies ***Investigative Project*** asks a question and then uses 5 steps called the *scientific method* to discover an answer. Students find something out for themselves. The term ***Scientific Method*** sounds pretty complicated but it is actually 5 simple ideas that scientists use to solve problems.

1) What I wonder (Question)
2) What I think (Hypothesis)
3) What I did (Experiment)
4) What I found (Results)
5) What I learned (Conclusions)

Another type of science project is an ***Invention***. In this type of project, students identify a problem they want to solve or a design they want to improve. They then follow the scientific method to test their invention.

Younger children (we recommend that older children conduct an investigative or invention project) may find it easier to do a ***Research Project*** instead of an investigative or invention project. A research project explains and displays information about a topic a student is interested in. It does not answer a question that is then tested. Topics can be very general like Mars, Life in Africa, Hurricanes, etc. Should parents want to help their child change their research question into more of an investigative or invention project, please use the following link to help guide that transformation:
http://school.discoveryeducation.com/sciencefaircentral/Parent-Resources.html

In fact, we highly recommend that parents visit two very helpful science fair websites to feel more prepared to help your child/children:
http://school.discoveryeducation.com/sciencefaircentral/Getting-Started.html
http://www.sciencebuddies.org/science-fair-projects/project_ideas.shtml

Need more help? Here is additional information to get you started.

Getting Started

What Do I Wonder?

What are you curious about? Do you like planes? Do you wonder how birds fly? Do you think about questions like: How do boys and girls think differently or the same? How did they actually get that camera up to Mars? How come my sandwich is moldy? Why does my heart beat so fast when I play sports?

The next step in the process is what scientists call ***defining a problem***. Learn about what you are interested in by doing research. Think about and record what you already know before you begin. You may also read books, read the newspaper, use the Internet, interview people, or go on your own field trip. Then use that information to create a more specific question. You can present this research in the ***background*** section of your display.

*Ask a **specific** **question**.* Every scientific or research investigation or invention begins with an interesting question. The questions above could be transformed into more scientific explorations: Do planes fly further with longer wings? What is the average amount of time hummingbirds hover at a feeder? Can boys or girls in my class kick the ball further? Which chemical mixtures will make my rocket fly the longest? Which type of bread grows the most mold? Does my heart beat faster when I play soccer, football, or chase my cat? Can I invent something to stop my dog from barking so much, without hurting him?

What Do I Think?

This is simply a prediction about the question and what you think will happen. Scientists call this a ***hypothesis***.

Examples: Mold grows faster on white bread than wheat bread. Girls kick balls further than boys. Longer wings will make my plane fly further . My heart beats fastest when I play soccer. Baking soda and vinegar will make my rocket fly the longest.

What Can I Do?

How can you answer your question? ***Carefully plan out an experiment or invention***. A good experiment shows results that can be measured and repeated. With a social studies project, you may need to conduct a survey or analyze data. A survey asks people specific questions about your topic. Your experiments, inventions, surveys, or data analysis provide information that

confirms or does not confirm your hypothesis. *Remember*: Even if your prediction is not correct, you have still learned just as much from the process as if your prediction had been accurate. Frequently, scientists learn just as much from discovering what does *not* work.

During this part of your project, also make sure you record what you will use (***materials***), what you will do (***procedure***), and the resources you will use (***references***).

What Do I Find?

Carefully conduct your experiment and record your findings*.** Be organized and use a notebook and/or a chart to record your ***results. You may want to take pictures or record actual measurements to include in your display. Think carefully about what you observe and what you learn.

Follow your procedure and record all findings. For example: corn seed planted on Day 1; watered with 1/8 cup water every other day; measured on days 14 and 21 (etc.). Other scientists should be able to repeat your experiment to test the results themselves.

What Did I Learn?

Explain your results. What do they mean? Draw a ***conclusion***. Maybe what you found is different than what you predicted. That's ok. This happens to real scientists all the time. It's also fine if your experiment didn't work out as you expected because your little sister helped you out by giving a little extra water to one of your corn plants. What matters is that you can explain why the results were different than what you expected.

A Summary of the Scientific Method:

Ask a Question
Gather Information
Make a Hypothesis
Gather Materials
Conduct an Experiment
Record Results
Make a Conclusion
Share What You Learned
Give Credit to Those Who Helped

How Do I Display My Results?

The display is an important part of your project. Eye catching drawings, organized data tables, colorful graphs, labeled diagrams, photographs, and clear writing (it is ok to hand-write or type) will make your exhibit stand out. Be creative! Be organized! Be proud!

Your display should be self-explanatory. The average viewer should be able to quickly grasp what it is all about without needing you to be present to answer questions or provide explanations. Organization is key!

Examples of your observations and results should be part of your display. You might want to include your actual notebook or parts of your experiment such as the actual plants, materials used, or a simple demonstration.

The following link has an excellent example of a well-organized science fair display board: http://school.discoveryeducation.com/sciencefaircentral/Science-Fair-Presentations/How-to-Create-a-Winning-Science-Fair-Display-Board.html

Students in 4th – 6th grades are highly encouraged to view this example. Of course, kindergarteners – 2nd graders should have much simpler and "homemade" boards than this example. ☺ 3rd graders can begin to implement this kind of organization.

Need more help? There are many great resources in the Mitchell library, your public library, and on the internet. Please visit the two websites we recommended earlier in the packet.

How Will I Be Judged?

The judges are friendly, professional scientists that have done their own research and performed experiments that have worked (and have not worked!). Be prepared to explain your project. Go over all the steps and tell the judges what you learned. This is the most important part. Be prepared to answer questions from the judges. Also remember that it's ok to say, "I don't know, but that is an interesting question." What matters is that you *understand* your project and are proud of all your hard work.

All participants will receive written feedback from our wonderful judges.

4th – 6th graders compete for 1st, 2nd, and 3rd place!

Important Rules to Read!

- **Title of Project, Name, Grade, and Teacher** should be clearly displayed on your project. This really helps the judges and volunteers.
- **List your resources**. Please give the title and author of books you used; list of websites; names of people interviewed, places visited, and all people who helped you complete your project.
- Displays must be **free-standing** and no larger than **4 feet wide by 3 feet tall**. Purchase display boards at office supply stores or craft stores, or make your own.
- **Dangerous chemicals, flames, or live animals are not permitted**.
- There will **not** be access to electrical outlets.
- Displays that involve **liquids** or materials that could spill or make a **mess** should be self-contained (in a tray or tub) and **set up in the "wet project" area**. Students are responsible for clean-up.