

Mitchell Road Christian Academy

Middle School Science Fair

The 2010 Mitchell Road Christian Academy Science Fair will be held on Monday, February 22. All seventh and eighth grade students are required to submit a project which will be evaluated by impartial judges. The top projects will be sent to the **South Carolina region 1A Science and Engineering Fair** held by Roper Mountain Science Center.

Your first big step is to **choose a topic** and this is also the most important step. It should be done with great care and a great deal of thought. Choose something you like. **You** must do it, so **you** pick the subject. To do a good job, you must enjoy your science project. Your topic should be presented in question form. What are you trying to find out? You must try to answer the question that you have asked.

Once your topic is approved, your **research** begins. Start looking for answers to your question. Go to the library or search the internet. Read as much as you can about your subject. If you are working on water pollution or acid rain, write or call the Environmental Protection Agency or the Greenville Soil and Water Conservation Department.

The next step is to **form a hypothesis**. What is your educated guess regarding the answer to the question you have asked? What do you think will happen? Once you have formed a hypothesis you are ready to **plan your experiments**. Be sure to record everything you do. If you plant some seeds, write down the date that you planted them and how many you planted. Record the times you water them and how much water you use. Write down the dates when the first sprouts appear. Keep a **notebook** for all your findings. If you are measuring the weight of each rabbit, write down the date, the time of day and the weight of each rabbit every time you weigh them. Take lots of **pictures** of your project. If the judges are to remain impartial *your face should not show on any of your pictures*.

When you have completed your experiments you are ready to **draw a conclusion**. What did you discover? What happened? What is the answer to your question? Was your hypothesis correct or did you get a big surprise? You are now ready to write the **science project report**.

The last step will be preparing your materials for display. We will discuss this in more depth as you get further along in your project.

The first important date for you to remember is Friday, January 16. You must have your topic selected by that date. The topic must be submitted **on the question form** to the teacher. I must approve all topics.

REMEMBER THE FOUR STEPS OF THE SCIENTIFIC METHOD

- I. STATE THE PROBLEM
- II. FORM A HYPOTHESIS
- III. INVESTIGATE
- IV. DRAW A CONCLUSION

WHAT IS A SCIENCE FAIR PROJECT?

A science project is a method of learning how to use experimentation, observation and scientific thinking in order to solve problems. It is something that you study, plan and then do; something that you design, something you build, something that you observe and record. It is a planned, step-by-step test to explain why and how something happens. It is a process of learning by doing.

A science project is often confused with a **construction** project or an art project. Artistic skills are an asset but they are strictly secondary. Students often choose a subject that is not really suitable for a project because it is neither experimental nor problem solving. A science project is not an enlarged model or drawing. It is not working up a plastic model from a hobby kit. It is not the display of an impressive piece of scientific equipment or a model of the solar system. Lists of flowers and trees, collections of rocks, bird's nests on display – these are **NOT** science projects because all of these things are inactive and prove nothing.

A science project is a test of detergents to find which is the best cleaning agent; it is a test of an animal's intelligence; it is a test to see if plants grow in different types of soil. Such subjects make good projects because they are experimental and solve a problem. **A science fair project must answer a question.**

A good science project relates a story. This story should tell the purpose of the project, the method you chose to solve your problem, the experiments and tests you made, the data you collected, and any illustrative materials that pertain to the project and your conclusions. The story should be easily understood so that an observer will know exactly what the project accomplished. You will need to spend many hours, over a long period of time, to complete your project, for it is not a weekend chore.

PROJECT REQUIREMENTS AND SUGGESTIONS

- I. Use the scientific method in an investigative way to solve a problem, form a conclusion and show how you arrived at the conclusion through experimentation.
- II. The display is a very important part of your project. It is ultimately the stage you use to present the information you have gathered. If you have a superior project but it is not well presented, the project will not receive the credit it might otherwise deserve. **The display must stand up without being propped against something. It must be no larger than 24" depth by 48" width by 72" height.** Your exhibit should have an original presentation and be as attractive as possible without containing excessive decorations that serve no purpose and might cause distractions. Use a short title done in large letters or use a single object as the center of attention. All information should be presented concisely so that it is not too difficult for the average observer to read. We will spend a day in class going over the board layout. Please do not start the board until the last weeks.
Note to parents: You may edit your child's project but please be sure not to edit the child out of it. I do not expect a child to present the material with words and expertise of an adult.

YOUR DISPLAY SHOULD INCLUDE THE FOLLOWING:

1. Title
2. Experimental Design
3. Background information including problem (question) and hypothesis.
4. Results including tables and graphs of data.
5. Conclusions
6. Logbook (include acknowledgement of help)
7. Written Report
8. Equipment, samples or other items from your equipment

DISPLAY SUGGESTIONS

1. **Keep it simple.** Do not overcrowd an exhibit with too many objects. It is better to select a few and emphasize those with plain background.
2. Give your exhibit a good, descriptive, **catchy title.**
3. Limit the reading matter that will be incorporated into the exhibit. Display information using line, bar or pie graphs, photography, or charts. This method of display is advantageous because it gives the visitor immediate information which keeps him interested.
4. Purchase the large science fair boards at a craft store or use inexpensive materials in construction. Visit your local lumber yard or hardware store to select materials for construction. Wall board or pegboard makes a good, inexpensive background material.
5. **Choice of color is important.** Use color for emphasis. You may get some ideas from your art teacher. Organize the color scheme fully before starting.
6. **Suggest life and action whenever possible**
7. Visitor participation is desirable. Attention is brought to the exhibit if visitors can press a button to see pictures, look through a magnifying glass, guess weights of objects and do other things to cause action.
8. Remember that you are to do all the work in producing the exhibit. **TEACHERS AND PARENTS AND OTHER INTERESTED PEOPLE ARE TO ASSIST YOU ONLY AS ADVISORS.** A good science project is **YOUR** project.
9. A **written report** must accompany your exhibit.

10. Use strong glue to keep items on your display board. Tape is not effective and often allows things to fall off.

PROJECT NOTEBOOK

You must have a project notebook at the start of your project in which to keep all your thoughts, preparations, ideas and data. Each day you will take 15 minutes and write in your data. It should be thorough and complete that after your project is finished, you will have a record of all the work that you did in your project.

WRITTEN REPORT

Written Rating Scale

Presentation (has title page, body, and bibliography in that order) **1 point**

Body

Logical presentation **1 point**

Quality of scientific information given and interesting presentation **5 points**

Spelling, punctuation, complete sentences and other mechanics **1 point**

Research - appropriate documentation by citations where needed **1 point**

Bibliography or Works cited accuracy and acknowledgements **1 point**

SIX-WEEK SCHEDULE:

FIRST WEEK – Due Jan. 19th

Select your topic. This should be written in the form of a question. You must submit your question to Mrs. Swiger for approval. You must have your topic selected and approved by Mrs. Swiger no later January 19.

SECOND WEEK – Due Jan. 25th

You should begin reading publications, search internet for information and begin keeping your notebook and planning your experiments. By the end of this week you should write your hypothesis and begin setting up your experiments.

THIRD THROUGH FIFTH WEEKS

Jan. 25 - 29

Feb. 1 - 5

Feb. 8 - 12

Begin your experiments and set aside at least 15 minutes each day for observation and the recording of information in your notebook. Start considering the conclusions you will draw from your experiments. Begin planning your exhibit. Outline and start writing report.

SIXTH WEEK – Feb. 16 - 19

Draw final conclusions from your experiments. Complete your report. Complete your exhibit. Paste on graphs, photographs, headings and check your text to be sure it is clearly and simply written. Set up your exhibit and attach all necessary data. Make any corrections needed. Please have an adult check for misspelled words.

Monday, February 22 Science Fair