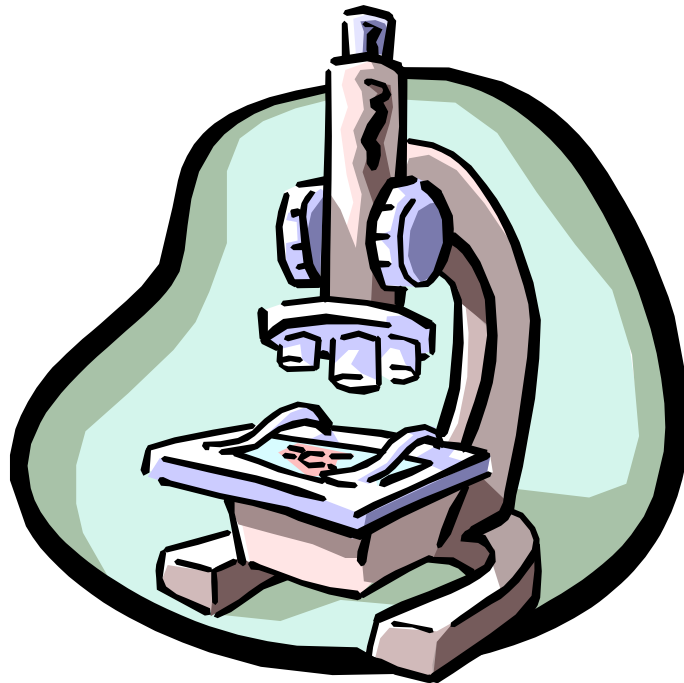


Beacon Christian School



SCIENCE FAIR

March 17, 2005

1:00 – 3:00 PM

PURPOSE

A science fair provides an opportunity to advance a student's scientific knowledge and gain a better understanding of the processes of science. Science fairs are also an opportunity to develop critical thinking and problem-solving skills and harness student creativity.

OBJECTIVES

To develop a science project that includes a demonstration or experiment that uses the steps of the scientific method: purpose, hypothesis, procedures used, experiment, results--data collection, conclusion.

To allow a student to do research into some particular area that interests him/her.

To help a student apply his/her newly gained knowledge in an organized manner.

To teach a student how to present his research in a clear and understandable fashion.

To promote wider interest in academic knowledge and educational research.

To initiate further interest in educational research and experimentation.

To give students the feeling of achievement and joy in being an active part of Christian education.

GUIDELINES FOR THE SCIENCE PROJECT

Students preparing their science project should consider the following:

The science project must include either a demonstration or an experiment.

Choose a specific area in which you can investigate thoroughly, firsthand. The most interesting type is the experimental project, where you try to reach conclusions through data obtained in a laboratory or field experiment.

Study the area carefully by "thinking through" each step.

Read widely! Your success with a project depends largely upon how much you know about your subject.

Demonstrate your ability to use the Scientific Method by including the following in your demonstration or experiment (clearly labeled and explained): purpose--what you want to find out; hypothesis--what you think will happen; materials--what materials did you use in your project; procedures--what you did; results (data collection)--what happened; and conclusion--what you learned about your topic from doing your project or experiment.

Question others. Draw heavily upon the knowledge of others in their own and related fields.

Plan and carry out your project to help answer the questions under study. Be critical of your findings.

Write a report. Your report should contain the following:

- A. The purpose of your project (what you are trying to find out).
- B. Procedure (how you went about doing your work).
- C. Special problems that you encountered.
- D. Acknowledgments of major help received and reference sources used.
- E. A bibliography correctly listing the sources used in doing your research (see samples).

Plan your exhibit after your experiment or demonstration is completed. Your exhibit should be a display version of your experiment or demonstration. Significant graphs, photos, data, apparatus, etc. should be displayed in a logical manner which will be clearly understood by judges and visitors.

Remember, your exhibit must show that you used the Scientific Method. It must not be merely a report, or just an exhibit of pictures/drawings on a subject.

Review the rules for the science fair making certain you have followed them so your project will receive the score it deserves.

CRITERIA FOR JUDGING SCIENCE PROJECTS

1. Use of the Scientific Method
2. Knowledge of Subject Matter
3. Creativity and Originality
4. Effort Involved
5. Neatness
6. Layout and Organization
7. Written Report

Each of the seven items has a possible score of three (3) points.

SIZE OF DISPLAY: In order for uniformity, the display of the project must be kept to a maximum of 30" deep (front to back) and 48" wide (side to side). The height is up to the individual. A three-panel display is the preferred format.

Inexpensive display boards may often be purchased at stores that sell office supplies like Staples and WalMart.

It should be noted that all presentations must be according to school standards.

The Scientific Method

- Purpose – What do you want to find out?
- Hypothesis – What do you think will happen?
- Materials – What do you need to use?
- Procedures – What will you do to find out?
- Results (data collections) – What happened?
- Conclusions – What did you learn?

SCIENCE PROJECT IDEAS

Internet Site listing many science fair project ideas and sources:

www.beacon-christian.org/neatsite.html

Biochemistry:

Embalming

DNA

Mutations caused by environmental & Genetic Factors

Botany:

Seeds

Papermaking Process

How Water passes through Plants

Production of soybeans in Louisiana

House Plants - care and propagation

Bean Plants - Seeds

Flowers

Plant disease

Trees

Flowers

Earth Sciences:

Agronomy

Astronomy

Weather

Light

Geysers

Gravity

Time zones

Crystals

Columbia River

Pollution in the water

Stars and Constellations

PH Balance of Soil

Gases in the earth

Light spectrum

Wind

Petroleum

Magnetic fields (magnets)

Layers of the earth

Waves, Currents & Tides

Fossils

Engineering:

Four-barrel Carburetor

Jet Engines

Jet Propulsion

Dams

Automobiles

Gasoline Engine

Small Gas Engines

Steam Engines

Windmills

Aerodynamics - Airplanes

Motion Pictures, Animation
Pyramids
How tires are made

Zoology:

Animal and Human Eyes
Skeletal System
Animal Ears (Comparison)
Protists
Muscles
Worms
Insects
The Tongue
The Brain
Snakes
Bees
Comparison of the human eye to fish eye
Spiders
Metamorphosis of frogs & butterflies
The human heart
Whales
Twins
Squirrels
Fish - West Coast

Electronics & Physics:

Crystal diode radio
Reflectoscope
Changing mechanical energy to heat energy
Telegraphs
Miniature two-cycle engines

More Projects:

Buoyancy
Center of Gravity
Chemical Models
Color
Computer Technology
Polarized Light
Probability
Sound
Sundial
The Lever and the Pulley
Liquid Chromatography

Solar Energy
Locks (water)
Building a go-cart

Algae and Protozoa
Ants
Animal & Plant Organisms
Brain
Cell Division
Orangutans
Butterflies
The Life of a Mayfly
How Heat Affects Ants
Honeybees
Amphibians
Frogs
Life cycle of salmon
Digestive system
Migration of ducks
Extinction of animals
Fur-Bearing Animals
Birds
Fish - Tropical Aquarium

Radio receivers
Space Shuttle
Engine horsepower
Electricity
Electric motors

Magnetism
Natural Rubber
Optical Illusion
Pendulum
Pinhole Photography
Corrosion
Electrostatics
Energy
Mirrors
Motion

BIBLIOGRAPHY MODEL

- BIBLIOGRAPHY** - This lists all the references used in working on your project. It is listed at the end of the paper and often appears on a separate page.
- WORKS CITED** - If it includes computer online sources, films, recordings, or other non-print sources along with books, etc.
- WORKS CONSULTED** - Includes works not actually used but possible repeats of material.

You will probably use the heading "**BIBLIOGRAPHY.**"

Your English textbook usually is a good source to consult for the proper form to use when writing your bibliography.

FORMS FOR BIBLIOGRAPHY ENTRIES

Kinds of Sources

Bibliography Entries

- Book: Martin, Elizabeth K., and C.J. Howard. Technique: Studies in Composition, 2nd ed. New York: Harper and Row, 1977.
- Magazine Article: Newhouse, John. "Letter from Cairo." The New Yorker, July 30, 1984, pp. 68-69.
- Encyclopedia Article (Print and CD-ROM):
Gyles, Mary Francis. "Pompeii." The World Book Encyclopedia. 2003 ed.

"Wyoming." Grolier Multimedia Encyclopedia. CD-ROM, 1996 edition.
- Newspaper Article: Gaiter, Dorothy J. "Scouts Tailor Programs for Urban Youths." The New York Times, November 1, 1980, p. 29.
- Online Services and the Internet:
Gordon, Daniel. "Acid Rain." Compton's Living Encyclopedia. [Online] America Online. Mar. 6, 1997.

"Plant Extracts." [Online] Available <http://www.sciences.com/scidata/edu.html>. February 23, 1997.

SAMPLE BIBLIOGRAPHY

Gordon, Daniel. "Acid Rain." Compton's Living Encyclopedia. [Online] America Online. Mar. 6, 1997.

The Great Chicago Fire: Letters by Men and Women Who Experienced Its Horrors. Chicago, Illinois: The Chicago Historical Society, 1946.

Howard, Robert P. Illinois: A History of the Prairie State. Grand Rapids, Michigan: William B. Eardmans Publishing Company, 1972.

Kogan, Herman, and Robert Cromie. The Great Fire: Chicago 1871. New York: G.P. Putnam's Sons, 1971.

Pierce, Bessie. A History of Chicago, vol. 2 and 3. Chicago, Illinois: University of Chicago Press, 1976.

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