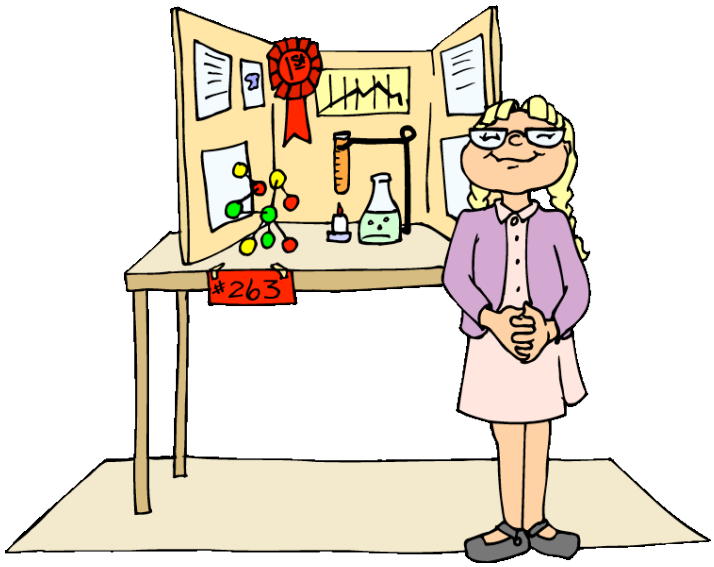
Science Fair

Project Planner



St. Mark's Cathedral School
"Where Futures Begin"
318.221.7454 | 908 Rutherford St., Shreveport, LA 71104

Dear Parents and Students,

This packet is designed to help you get started on your science fair project.

A science project is an opportunity for the student to "cross train" academically: to develop critical thinking and presentation skills. When the student demonstrates the scientific method, uses repeated tests with a basic understanding of statistical analysis, is diligent in reading and learning background information, and can discuss the concepts of science suggested by the student's experiments, the student is well on the way to having an wonderful science fair project.

Obviously, a good project will conduct an experiment to answer a scientific question. It is not a model like a volcano or a research paper!

One of the hardest parts of doing a science fair project is deciding on the topic! It is very important to choose a topic in which you are interested. There are a number of websites that will help you. A list of websites may be found in this packet.

St. Mark's School can send ten individual projects and two projects presented by a 2-person team. However, team projects now compete in the same categories as individual projects.

Specific information about the Region I Science and Enginneering Fair can be found at: http://www.bpcc.edu/sciencefair/documents/rulesforentryanddisplay.pdf.

Please be aware that students must have a Qualified Scientist if they plan to do projects with microorganisms or vertebrate animals. Special documentation is required for these projects. Other project may require special documentation. This documentation may be found at the following website: http://www.sciserv.org/page.aspx?pid=282.

Your science fair project must contain 4 parts: a Project Log Book. A Science Fair Report, an Abstract, and a Display Board. **The Project Log Book should start with the brainstorming of the topics for the science fair research, should include the research and all observations both qualitative and quantitative**. The students will receive a packet that explains how to put together the Science Fair Report, the Abstract and Display Board.

Please remember all experiments need to be repeated to support the validity of the conclusion. Students should take pictures throughout the project but these pictures should not show the face of the experimenter or any other subjects under the age of 18. No live cultures, food, dead or preserved animals can be displayed with the science fair project. If electricity is needed the extension cords must be UL approved. Display boards may be purchased from Paper Shack, Office Depot, Office Max or Paula's.

Judges are impressed with projects that are creative and innovative. Students are expected to present their projects with a thorough knowledge of their experimentation and to be able to answer questions about their research.

We believe this is wonderful opportunity for students to develop their scientific inquiry skills and learn to love and enjoy science as well.

Sincerely yours,

Mary Ziober

Cathy Williamson

Cathy Williamson

Intel ISEF Categories and Subcategories

ANIMAL SCIENCES
Animal Husbandry
Development
Ecology
Pathology
Physiology
Populations Genetics
Systematics
Other

BEHAVIORAL & SOCIAL SCIENCES
Clinical & Developmental Psychology
Cognitive Psychology
Physiological Psychology
Sociology
Other

BIOCHEMISTRY
General Biochemistry
Metabolism
Structural Biochemistry
Other

CELLULAR & MOLECULAR BIOLOGY
Cellular Biology
Cellular and Molecular Genetics
Immunology
Molecular Biology
Other

CHEMISTRY
Analytical Chemistry
General Chemistry
Inorganic Chemistry
Organic Chemistry
Physical Chemistry
Other

COMPUTER SCIENCE
Algorithms, Data Bases
Artificial Intelligence
Networking and Communications
Computational Science, Computer Graphics
Computer System, Operating System
Software Engineering., Programming Languages
Other

EARTH & PLANETARY SCIENCE
Climatology, Weather
Geochemistry, Mineralogy
Paleontology
Geophysics
Planetary Science
Tectonics
Other

ENGINEERING: Electrical & Mechanical
Electrical Engineering, Computer Engineering, Controls
Mechanical Engineering, Robotics
Thermodynamics, Solar
Other

ENGINEERING: Materials & Bioengineering
Bioengineering
Chemical Engineering
Civil Engineering, Construction Eng.
Industrial Engineering, Processing
Material Science
Other

ENERGY & TRANSPORTATION
Aerospace and Aeronautical Engineering, Aerodynamics
Alternative Fuels
Fossil Fuel Energy
Vehicle Development
Renewable Energies
Other

ENVIRONMENTAL MANAGEMENT
Bioremediation
Ecosystems Management
Environmental Engineering
Land Resource Management, Forestry
Recycling, Waste Management
Other

ENVIRONMENTAL SCIENCES
Air Pollution and Air Quality
Soil Contamination and Soil Quality
Water Pollution and Water Quality
Other

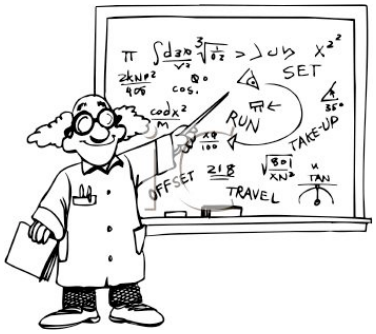
MATHEMATICAL SCIENCES
Algebra
Analysis
Applied Mathematics
Geometry
Probability and Statistics
Other

MEDICINE & HEALTH SCIENCES
Disease Diagnosis and Treatment
Epidemiology
Genetics
Molecular Biology of Diseases
Physiology and Pathophysiology
Other

MICROBIOLOGY
Antibiotics, Antimicrobials
Bacteriology
Microbial Genetics
Virology
Other

PHYSICS & ASTRONOMY
Astronomy
Atoms, Molecules, Solids
Biological Physics
Instrumentation and Electronics
Magnetics and Electromagnetics
Nuclear and Particle Physics
Optics, Lasers, Masers
Theoretical Physics, Theoretical or Computational Astronomy
Other

PLANT SCIENCES
Agriculture/Agronomy
Development
Ecology
Genetics
Photosynthesis
Plant Physiology (Molecular, Cellular, Organismal)
Plant Systematics, Evolution
Other



Websites to Help With Science Fair Projects

Brainstorming a Topic

Science and Kids have topic ideas in biology, Earth science, physics, chemistry and much more.
http://www.sciencekids.co.nz/projects.html

Science Buddies allows you to browse over 1,000 ideas or allows you to take a survey to narrow down topics based on your interests. There are also tabs that give an explanation of the scientific process with detailed explanations of each step. There is even a tab for parents.
http://www.sciencebuddies.org

Science Made Simple.com is a website that takes you through the whole process of the science fair project from choosing the topic to making the board.
http://www.sciencemadesimple.com/science_fair_project.html

Science Fair Project Ideas

Education.com has pages and pages of possible experiment ideas for middle school students.
http://www.education.com/science-fair/sixth-grade+seventh-grade+eighth-grade/

Science Fair Projects World has topics categorized by subject i.e. biology, chemistry, physics, math, human body and technology.
http://www.sciencefair-projects.org

Science Fair Bob has ideas, experiments and research help.
http://www.sciencebob.com/index.php

Scientific Method

Science and Kids has an explanation of the scientific method.
http://www.sciencekids.co.nz/projects/thescientificmethod.html

Fact Monster has a detailed explanation of the scientific method as it relates to a science fair project.
http://www.factmonster.com/cig/science-fair-projects/understanding-using-scientific-method.html

Science Journal Instructions

A research journal is a detailed record of a scientific investigation. Scientists keep records of their investigations mainly because if details are not written down they may be forgotten.

Scientists always have the goal of publishing their research. In this articles scientist must describe how the experiment was conducted, what type of data was collected, and anything that happened during the experiment. A research journal serves as a primary document used to create the final public research paper.

A journal is very much like a diary that is a sequential record of everything that is thought or done involving the scientific research.

From the time you start your science fair project (including the first day when it is introduced in class) you are to keep a journal. Your research journal should contain the following:

- Your initial observations
- Your initial brainstorming ideas
- Initial questions you are interested in asking
- Background information you already know about the your research question
- Background information you find about your research question and the sources where you found this information
- Your refined research question
- Materials you used in your research
- Rough draft of your experimental procedure
- Data you collected during your research
- Reflections about how the research is progressing
- Your results

- Reflections about what your results mean

Each journal entry should have the date, written in the same place every time. Update your research journal regularly.

Name: _____
Science Fair Project Planner

Question:

Research: (Use at least **three** sources for facts and information that support your hypothesis. You may use the space below or attached a typed copy of your findings. It may be written in paragraph form or as "bullets".) BE sure to complete the MLA Worksheet (see end) for each source used.

Hypothesis:

Variable Identification: (What things will affect your project?)

List the **dependent variable** for your project. This is the variable you will measure in some way.

List the **independent variable** for your project. This is the one variable you will change in your project.

List the other variables that will affect your project. Explain how you will set controls for them.

Variable	Method of Control
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Explanation of Measurement:

Write below how you will measure your results. List any and all equipment or tools you will be using. They should also be listed in the materials section above. *BE sure to explain how the pieces of equipment or tools will be used.*

_____

_____

_____

_____

_____

Now list all the tools with the units you will use to measure your variables.

Tool	**Unit of Measure**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Materials: (What will you need to conduct your experiment?)

_____ _____

_____ _____

_____ _____

_____ _____

Procedure: (How will you conduct your experiment?)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. (continue on the back if you need additional steps)

Resources: You must have at least **three resources** for science fair resources. They may be books, websites, personal interviews, magazines, pamphlets, documentaries, or any other acceptable research materials (see attached). **HOWEVER, AT LEAST ONE RESOURCE MUST BE SOMETHING OTHER THAN A WEBSITE. ***Wikipedia is NOT an acceptable website*****

MLA Worksheet for Listing Sources

Book

Author or Editor: _____

Title of Book _____

City of Publication _____

Name of Publisher _____

Year Published _____

Book

Author or Editor: _____

Title of Book _____

City of Publication _____

Name of Publisher _____

Year Published _____

Book

Author or Editor: _____

Title of Book _____

City of Publication _____

Name of Publisher _____

Year Published _____

MLA Worksheet for Listing Sources

Online Website

Author _____

Document Title* _____

_____

Website or Database Title _____

_____

Date of Electronic Publication _____

Name of Sponsoring Institution _____

Date Information Was Accessed* _____

http://website.com* _____

***minimal requirements**

Online Website

Author _____

Document Title* _____

_____

Website or Database Title _____

_____

Date of Electronic Publication _____

Name of Sponsoring Institution _____

Date Information Was Accessed* _____

http://website.com* _____

***minimal requirements**

MLA Worksheet for Listing Sources

CD-ROM

Author _____

Title of Article _____

_____

Title of Website or Database _____

_____

Title of Medium (CD-ROM) _____

City of Electronic Publication _____

Electronic Publisher _____

Date of Publication _____

CD-ROM

Author _____

Title of Article _____

_____

Title of Website or Database _____

_____

Title of Medium (CD-ROM) _____

City of Electronic Publication _____

Electronic Publisher _____

Date of Publication _____

MLA Worksheet for Listing Sources

Encyclopedia Article

Author (if known) _____

Title of Article _____

Name of Encyclopedia _____

Edition _____

Year _____

Encyclopedia Article

Author (if known) _____

Title of Article _____

Name of Encyclopedia _____

Edition _____

Year _____

Interview

Speaker (interviewer) _____

Personal or Phone _____

Guest speaker (interviewee) _____

Date of interview _____

MLA Worksheet for Listing Sources

Newspaper or Magazine Article

Author _____

Title of Article _____

Publication Name _____

Date _____

Page numbers _____

Movie or Video Recording

Title _____

Name of Director or Producer _____

Videocassette, Videodisc, or Movie _____

Name of Distributor _____

Television or Radio Program

Title of Program _____

Name of Host _____

Network _____

Station Call Letters _____

City _____

Date of Broadcast _____