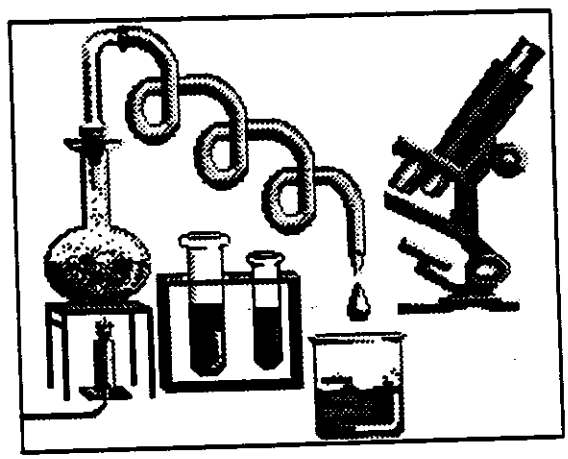
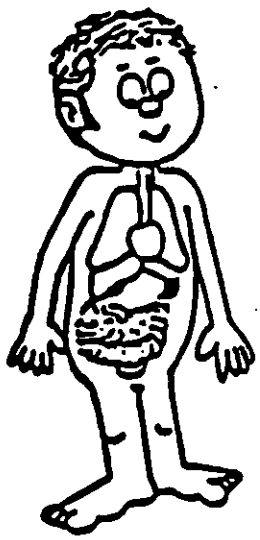
THE MODEL

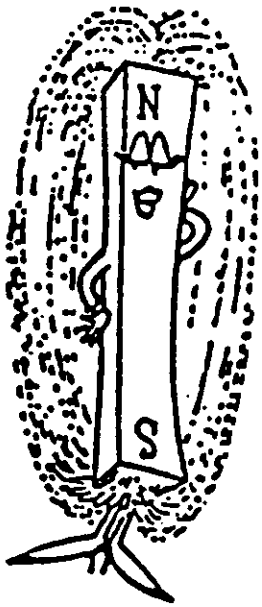


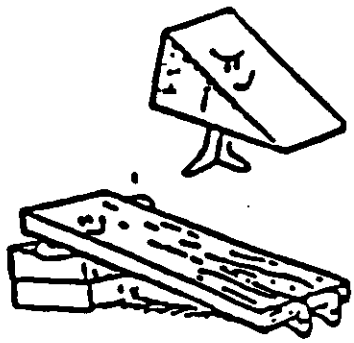
The Model

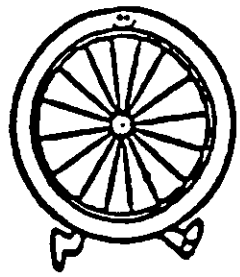
A model is a copy of something you can see. The model you make can be the exact same size as the real thing (this is called a "full-scale model"), or it can be a smaller size (a "miniature"), but the parts must still fit together just like a full-size model.

The first thing you need to do is begin keeping a log (diary or journal) of all the activities you do concerning your project. Then you can begin a model of the human heart, our solar system, solar furnaces, steam engines, etc. Find books that tell about the parts of the item and how the parts fit and work together. Decide whether you want to make a full-scale model or a miniature model. (Be sure to check the exhibit size limits to see if a full-scale model would fit.) Next, you need to decide what kind of materials you can find to build your model. Store-bought kits are not allowed. When you are putting your model together, you need to be sure that the parts are labeled and that they are the right size. If you can make your model work just like a real one, that is great! If not, be sure that the parts fit together properly. Finally, write a report that tells about your model, its parts, their jobs, and how all the parts work together. The report is a very important part of your project because it lets the judges know that you really understand how this item works. In your report you could even comment on how efficient the parts are or what could work better.









THE JUDGES WILL CHECK TO SEE:

1. If the project is really made by you, instead of you just putting together a store-bought kit.

2. If all the parts are the right size for your copy. Does the model work properly if you made a workable model?

3. If you have labeled all the parts and if you have given short descriptions of each part.

4. If the model is put together neatly. Is it ready to fall apart?

5. If the model is important to science.

6. If the report has a page telling what books you used. You can also include a page saying who helped you and in what way. This is called an "acknowledgments page."

7. If you clearly explained in your report your model, its parts and descriptions, and how all the parts work together.

WHAT THE JUDGES ARE LOOKING FOR

MODEL

LOG BOOK AND REPORT

What resources were used to find out information about the model?
How it works?
Who discovered, invented or perfected it?
Why did the student choose this model to do?
Write about the object/process to be modeled. Include a drawing.

SKILLFUL CONSTRUCTION/STUDENT-MADE

Is the object sturdy and put together carefully?
Are the pieces neatly cut and joined together?
Is it made by the student and not a store-bought kit?

ACCURATE (DONE TO SCALE); WORKABLE

It is important that all parts of the model are in accurate proportion to each other.
If a demonstration--does it work?

APPROPRIATE LABELS/DESCRIPTIONS

Are the labels accurate and placed in their correct positions?
Are your descriptions brief and to the point?
Are correct scientific terms used?

SCIENTIFIC VALUE

Why is the model important in the field of science?
Has it answered any scientific questions posed by the student?

The Log Book

The log is the most important part of experimenting in science. It also is the most important part of your science fair project. A log is like a diary. You write, or type, the date of each entry and what you did, observed, or read; whom you have talked to; the drawings you made; any facts or data; and/or your thoughts about your project.

Adults or friends can answer your questions or ask questions, but you are the decision maker and the doer. Be sure to consider safety for yourself and others while doing your study or making an exhibit. Start your LOG BOOK the day you begin to think about choosing your topic. All information is kept in the log book as it replaces the report. A bound composition book is preferred for your LOG BOOK.

Specific things that might be included in the log book:

A list of books that were read and notes taken from reading those books.

The statement of the problem being explored. Any questions you may have about any aspect of the project.

Your hypothesis, procedure, materials used and reflections.

Include where you found items for collection or got the materials for your model.

Acknowledgment of those who helped you. Remember not to list actual names.

K-2 Rubric

Academy of Science

The Academy, Monsanto Fund & Pfizer-St. Louis, working together to bring authentic science to the students of St. Louis City and St. Louis County.

MONSANTO FUND

Pfizer *Working for a healthier world™*

SCORE
(Total of 5 Sections Below)

ROW	POS	Sequence Nr.

Scientific Process	None 0	Below Average 2	Meets Expectations 4	Exceptional 5	Score
Problem	None	Problem lacks some clarity or is not testable	Problem is testable and clear	Exceeds expectations	
Hypothesis	None	Hypothesis does not make a clear prediction	Hypothesis is clear and in own words	Exceeds expectations (references variable)	
Procedure	None	Procedure is vague and would be difficult to repeat	Procedure is clear and project can be repeated after reading them	Exceeds expectations (precise and well thought out)	
Trials/Samples	None	Only on sample/trial is shown	Multiple samples/trials are shown	Exceeds expectations (3 or more samples/trials)	
Data/Observations	None	Data/observations shown but not discussed	Data/observations are shown and discussed	Exceeds expectations (well organized table)	
Conclusion	None	Conclusion present but no hypothesis reference	Conclusion is clear and references hypothesis	Exceeds expectations (very thorough)	
Constant Conditions (*all conditions not being tested should be held constant*)	None	Not all conditions are held constant	All other conditions held constant (automatic if not experiment)	Exceeds expectations (discusses constant conditions)	
Safety	None	Some minor additional safety precautions could have been taken	Project is completed in a safe manner with no possible safety violations	Great safety procedures are discussed	

Scientific Process Total from above chart = _____/40

LOGBOOK

Logbook Contains ...	20 Points
Diary of entire project	0 3 5
Drawings/Diagrams	0 3 5
Data/Observations	0 3 5
Background information given	0 3 5

CREATIVE/ORIGINALITY

Project should ...	15 Points
Offer an interesting problem	0 3 5
Offer interesting visuals	0 3 5
Idea is unique to student	0 3 5

WORKMANSHIP

Project shows ...	10 Points
Good explanation of project	0 3 5
Organized visuals	0 3 5

OVERALL RELEVANCE

Considering the project ...	15 Points
Was the project relevant to student?	0 3 5
Did the project show an appropriate amount of effort?	0 3 5
Did the student learn something from this project?	0 3 5

EXHIBITOR INFORMATION

DISPLAY CONSIDERATIONS

Label the sections and arrange them logically. Helpful sections include: background information, problem, hypothesis, procedure, results and conclusions.

Use photographs to show the procedure. Use large, bold printing of typing. Color code the study's variables. Reference your log book or report to critical information or data.

Acknowledge those who advised or assisted you. Do this in general terms such as; "teacher", "parent", etc.

Computer generated materials are fine. If it was not keyboarded by the exhibitor, state this on the first page of the log.

DISPLAY RULES

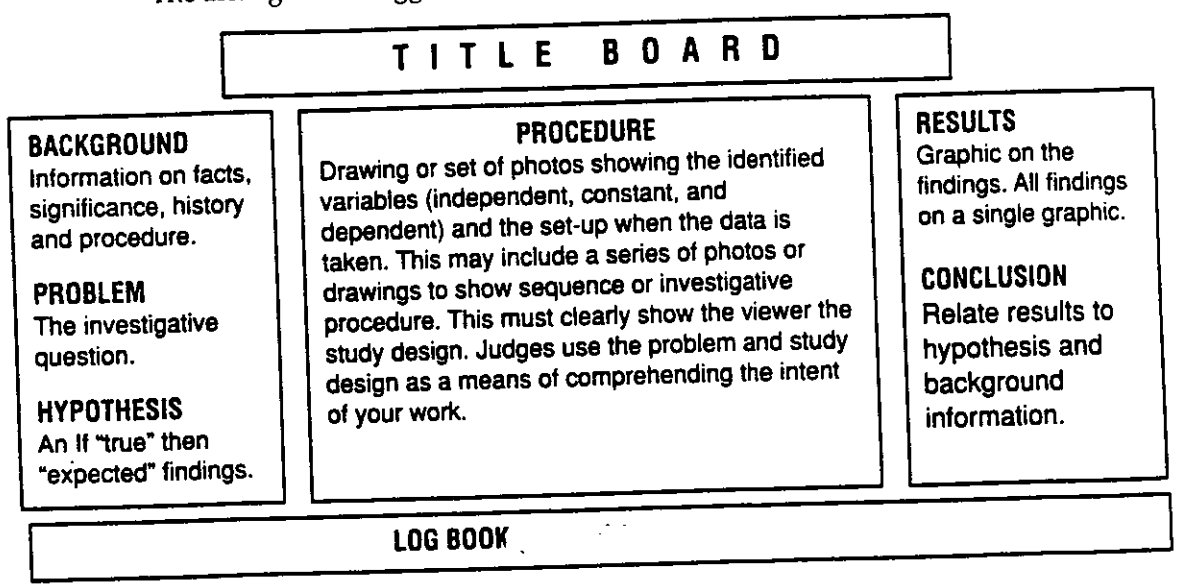
SAFETY: Examples are breakables, liquids, powders, animals, body fluids, plants, microbes, inflammables, soils, batteries, or electrical hazards **cannot** be displayed. Use photos or drawings to represent the real thing.

VALUABLES: Items which are valuable or valued by the exhibitor **are not** to be displayed. If the Fair removes an item, they will attempt to return it to the owner.

EQUITY: The name or an identifiable photo of the exhibitor or the exhibitor's school is not to be displayed or recorded on any written material. Identity is by the number which will be written, at school, on the exhibit.

EXHIBIT SUGGESTED LAYOUT

The assessment criteria indicate which sections are most valued by the points given for each of them. The arrangement suggested below takes those values into consideration.



Bulletin - Project Safety & Equity

— print page —

The following display rules ensure safety for the viewer, prevent the loss of exhibitor's valuable or valued items, assure equity of display area and compliance with federal regulations.

The Display must conform to the following list of items that are **NOT ALLOWED**:

A. Living organisms, including plants
B. Taxidermy specimens or parts
C. Preserved vertebrate or invertebrate animals
D. Human or animal food
E. Human/animal parts or body fluids (for example, blood, urine)
F. Laboratory/household chemicals including water (Exceptions: water integral to an enclosed apparatus or water supplied by the Display and Safety Committee)
G. Poisons, drugs, controlled substances, hazardous substances or devices (for example, firearms, weapons, ammunition, reloading devices)
H. Dry ice or other sublimating solids
I. Sharp items (for example, syringes, needles, pipettes, knives)
J. Flames or highly flammable materials
K. Batteries with open-top cells
L. Awards, medals, business cards, flags, endorsements and/or acknowledgements (graphic or written) unless the item(s) are an integral part of the project
M. Photographs or other visual presentations depicting vertebrate animals in surgical techniques, dissections, necropsies, or other lab procedures
N. Active Internet or e-mail connections as part of displaying or operating the project
O. Glass or glass objects unless deemed by the Display and Safety Committee to be an integral and necessary part of the project (Exception: glass that is an integral part of a commercial product such as a computer screen)
P. Any apparatus deemed unsafe by the Scientific Review Committee, the Display and Safety Committee (for example, large vacuum tubes or dangerous ray-generating devices, empty tanks that previously contained combustible liquids or gases, pressurized tanks, etc.)

DISPLAY SAFETY - Your display MAY NOT have any of the following items attached:

- Food
- Breakables
- Powders
- Plants
- Microbes
- Soils
- Electrical Hazards
- Sharp Items
- Liquids
- Animals
- Body Fluids
- Inflammables
- Batteries
- or other materials that may be considered hazardous