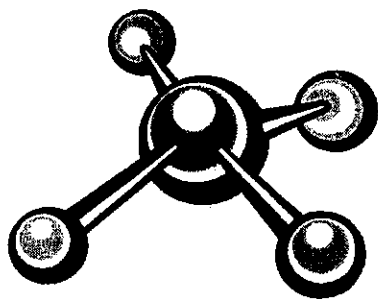


Dear Chippewa Science Fair Participants and Parents,

Here are some tips and steps to follow in completing your project. We hope you find them helpful.

Please review this packet of information as a resource to guide you through your science fair project from start to finish. Please refer to the following websites as well www.all-science-fair-projects.com
www.hometrainingtools.com/articles/elementary-project-ideas.html
www.sciencemadesimple.com/projects.html They are outstanding sites with lots of helpful information. Our first place winners will be entered in the Brookhaven National Laboratory (BNL) elementary school science fair which will take place on May 1st. In this packet is a copy of BNL's scoring rubric and their project requirement checklist. Please refer to these as well.

The Science Fair Committee



Science Fair Newsletter

An outline of steps which will help organize this study are suggested below:

- 1) Decide to do a project.
- 2) Choose a topic which is matched with the student's ability.
- 3) Visit sites and gather information and materials.
- 4) Formulate a way of studying the problem.
- 5) Make predictions about the outcome.
- 6) Carry out the experiment and write observations.
- 7) Look at what happened, view notes or information you gathered.
- 8) See what you found.
- 9) Repeat the experiment to see if you get the same results.
- 10) Prepare a way of explaining what you've learned (exhibit)
- 11) Present what you did.

JUDGES' RUBRIC

BNL Elementary School Science Fair

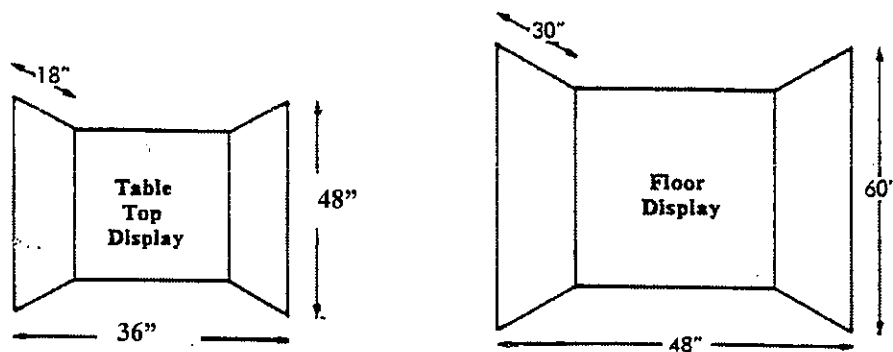
Criteria	4	3	2	1
Originality of Question	Original idea going beyond a traditional or existing idea.	Different perspective on a traditional idea.	Expanding an existing idea.	No originality.
Hypothesis/ Define the Problem	Thoroughly developed with reasoning. Ex. "I think...because..." or a clearly defined problem to be solved or question to be answered.	Sufficiently developed.	Partially developed.	Major flaws.
Procedures/ Engineering Design Solutions	Easy to follow sequence of the Scientific Method or Engineering Design Process. Dated sequence of entire process captured by the student in a log or journal. This includes all observations, data collection, and changes to project.	Easy to follow sequence of the Scientific Method or Engineering Design Process. Dated sequence of entire process captured by the student in a log or journal with moderate detail.	Somewhat difficult to follow because of lapses in the sequence of the Scientific Method or Engineering Design Process. Minimal documentation included in a log or journal.	Difficult to follow; no sequence of the Scientific Method or Engineering Design Process. No data collection shown.
Investigation Trials	Experiment was performed 3 or more times and/or sample size was exceptional or engineering design was tested 3 or more times.	Experiment was performed 2 times and/or sample size was adequate or engineering design was tested 2 times.	Experiment was performed 1 time and/or sample size was minimal or engineering design was tested 1 time.	Experiment was performed incompletely.
Analysis	Data is clearly presented in the form of a table, chart, or other graphic organizer and directly relates to the hypothesis/question/problem.	Data is reasonably presented and shows good relationship to hypothesis/questions/problem.	Data is minimally presented and shows some relationship to hypothesis/question/problem.	Data is not presented and no relationship to hypothesis/question/problem is evident.
Evaluation/ Conclusion/ Solution	A logical conclusion has been drawn based on the data collected or the design(s) tested. The conclusion or design answers the hypothesis/question/problem and/or raises a new hypothesis/question/problem. Has real world application.	A logical conclusion has been drawn based on the data collected or the design(s) tested.	A fairly reasonable conclusion has been drawn based on the data collected or the design(s) tested.	The conclusion drawn or solution designed is not shown to relate to the data collected.
Presentation (Overall Impression)				

*Scientific Method: question, hypothesis, investigating/testing, analysis and evaluation/conclusion.

**Engineering Design Process: Identify a need or problem, research/brainstorm possible solutions, choose solution(s), design solution(s), test and evaluate.

Project Requirement Checklist:

- Projects must follow the scientific method or the engineering design process.
- Nothing on the project may identify the child, child's gender, or school. This is including, but not limited to, photos, journals, labels or titles. Journals are encouraged providing they do not identify the student.
- Size of project cannot be bigger than standard cardboard project boards (36 x 48") available at many retail locations.



- Students will not be present during judging. Any project having moving parts must either run continuously or have a "start" mechanism that can be easily activated by a judge.
- BNL will not provide facilities or outlets for electricity, running water, drainage, gas, or compressed air. Dangerous chemicals, open flames, and explosives may not be exhibited. All projects must be durable and safe. Moveable parts must be firmly attached.
- Any project deemed to be unsafe or inhumane in any way will not be displayed at the BNL Science Fair and will not be judged. Live animals cannot be exhibited at the BNL Science Fair, but photographs are acceptable.
- Each project must include the completed Summary of Project form (front of this form) prominently displayed with the project.
- The project must clearly reflect the students' own efforts. If adult support is given, it should be acknowledged on the display.

Chippewa Project Guide and Timeline

1. Choose a topic.
2. Follow the **Scientific Method** (**bold italicized terms must be present on display board**)

Scientific Method:

Question: Ask a question about what you want to study.

Hypothesis: After doing some research make an educated guess about what the answer to the question will be.

Materials: Make a list of all materials needed to do the experiment.

Procedure: Design and construct the experiment to test question/hypothesis. List each step of the experiment as detailed as possible. The procedure should be clear enough to be easily be duplicated by someone else.

Data: Collect data and organize into tables, charts and/or graphs.

Results: Tell what happened in the experiment. Present and analyze results.

Conclusion: Write what the results tell you. Explain whether or not the hypothesis was correct. If not, explain how the answer was different.

****Additional Criteria for Third, Fourth and Fifth Grade Projects****

- **EXHIBIT-** This is the visual presentation of your project so prepare it carefully. Use graphs, charts and clear bold lettering to highlight this display.
- **JUDGING-** Plan how you can to explain your project to your fellow Classmates and teachers. Look neat, speak clearly and don't fidget or do other distracting things.

Science Fair Tips from Past Judges

- Parents should help, but not DO the project. Judges can tell!
- Clarity, Clarity, Clarity - taking the extra time to explain what the project is about, or even better, what you learned can really make a difference. Using graphs to illustrate your data is impressive.
- Follow rules about names placement on back, no demonstrations, no live animals, no electricity needed and only include photos that do NOT identify people (no faces).
- Typing is neat, but judges prefer the handwritten work. Neatness is important however you display your information!

Choosing the Best Science Fair Project Topic

Choosing a science fair project topic can be a long and arduous process. Does it have to be? Of course not! There are two keys to choosing your topic quickly and wisely: Knowing the right resources to consult and choosing the best topic for **you**.

Science Fair Project Topics

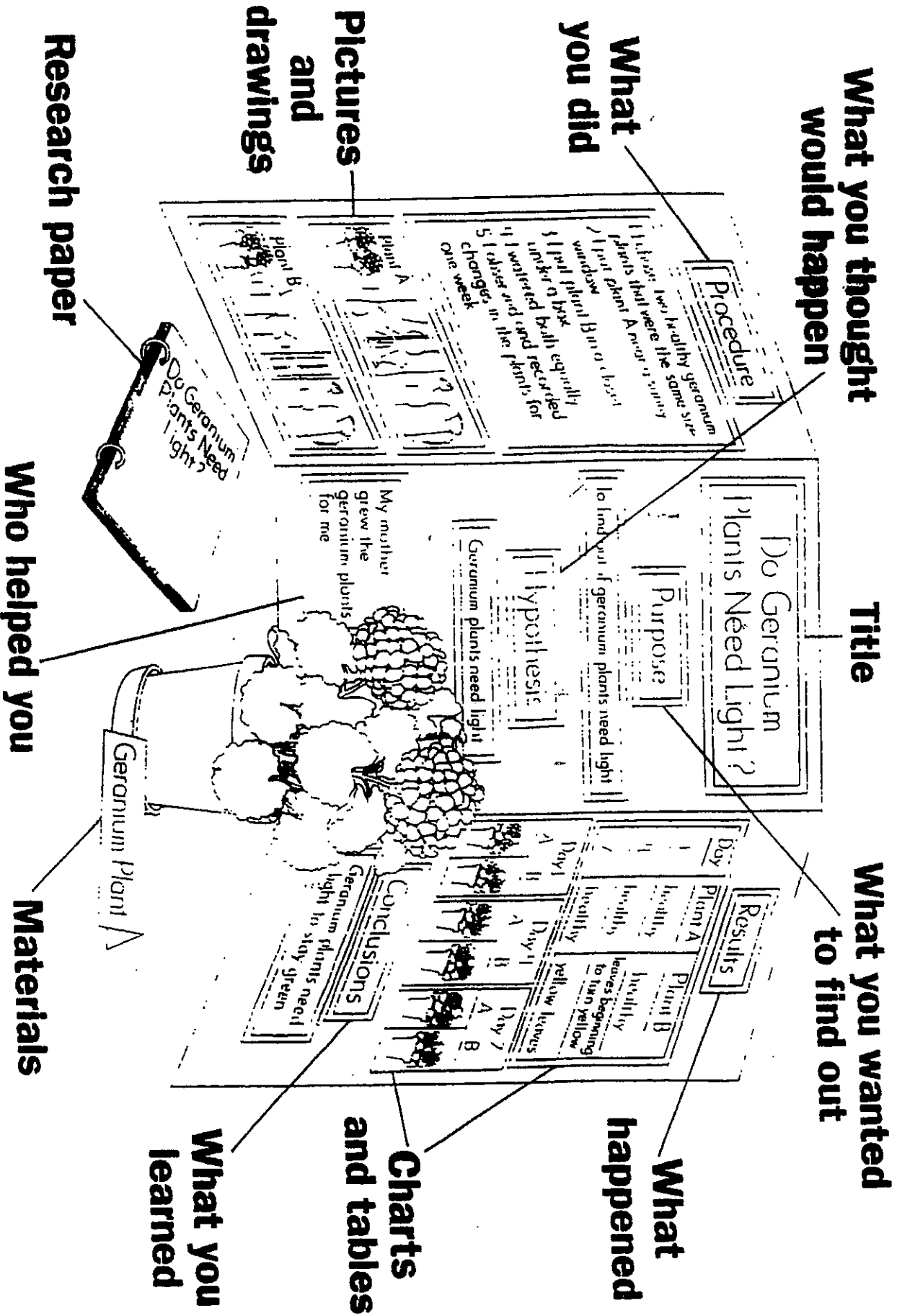
Obviously, the first step in getting started on a science fair project is choosing a topic. You want the topic you choose to be the best possible topic for you. The science fair project topics you consider should be things that interest and excite you. Don't choose a topic that you will be bored with in a few days.

This brings us to the question, how do you choose a topic? When choosing a science fair topic, think about something you like to do. What would you like to find out about it? Think about the who, what, when, and where of the activity.

- Who can you do the activity with?
- What items do you use when doing this activity?
- Where and when do you do this activity?

After you have a general sense of what interests you, it is time to get specific. First, consult the appropriate resources to help you find ideas that line up with that general sense and then choose the best topic for you.

Displaying a Science Fair Project



Kindergarten - Second Grade Chippewa Science Fair Judge's Rubric

Criteria	4	3	2	1
Question/ Hypothesis	Thoroughly developed, correctly stated with the control and test variables identified.	Sufficiently developed with reasonable relevancy.	Partially developed with some relevancy.	Major flaws and limited or no relevancy.
Hypothesis	Thoroughly developed with "I think...because..."	Sufficient hypothesis.	Partial hypothesis.	No hypothesis.
Procedures/ Organization	Easy to follow sequence of the Scientific Method. Language is clear and correct.	Reasonable sequence of the Scientific Method. Some language errors.	Somewhat difficult to follow because of lapses of the Scientific Method.	Difficult to follow: no sequence of the Scientific method.
Investigation/ Trials	The procedure was repeated more than twice. The student suggests a "next step" or "but what if?"	The procedure was repeated twice. Further suggestions are not discussed.	The procedure was performed once. Further suggestions are not discussed.	The procedure was incomplete. Further suggestions are not discussed.
Analysis/ Conclusion	Data and results are clearly presented and directly relates to hypothesis/question.	Data and results are reasonably presented and show a good relationship to hypothesis/question.	Data and results are minimally presented and show some relationship to hypothesis/question.	Data and results are not presented and no relationship to hypothesis/question is evident.
Creativity	Originality is evident on the topic, question, procedures, data collection and materials used.	Some originality is evident in the topic, question, procedure, data collection and materials used.	Some originality is evident in one aspect of the project.	No originality is shown in any aspects of the project.
Support from Others	The project clearly reflects the student's own efforts. If adult help is given, it is acknowledged and explained clearly on the display board.	The project reflects the student's efforts in combination with an adult. Adult help is acknowledged clearly.	The project reflects much work done by an adult. Help is acknowledged somewhere within the project.	The project was clearly completed mostly by an adult. The student does not acknowledge help.
28 - 21 A	20 - 15 B	14 - 8 C	7 - 5 D	1 - 4 F (no project)

Third - Fifth Grade Chippewa Science Fair Judge's Rubric

Criteria	4	3	2	1
Question/ Hypothesis	Thoroughly developed, correctly stated with the control and test variables identified.	Sufficiently developed with reasonable relevancy.	Partially developed with some relevancy.	Major flaws and limited or no relevancy.
Hypothesis	Thoroughly developed with "I think...because..."	Sufficient hypothesis.	Partial hypothesis.	No hypothesis.
Procedures/ Organization	Easy to follow sequence of the Scientific Method. Language is clear and correct.	Reasonable sequence of the Scientific Method. Some language errors.	Somewhat difficult to follow because of lapses of the Scientific Method.	Difficult to follow: no sequence of the Scientific method.
Investigation/ Trials	The procedure was repeated more than twice. The student suggests a "next step" or "but what if?"	The procedure was repeated twice. Further suggestions are not discussed.	The procedure was performed once. Further suggestions are not discussed.	The procedure was incomplete. Further suggestions are not discussed.
Analysis/ Conclusion	Data and results are clearly presented and directly relates to hypothesis/question.	Data and results are reasonably presented and show a good relationship to hypothesis/question.	Data and results are minimally presented and show some relationship to hypothesis/question.	Data and results are not presented and no relationship to hypothesis/question is evident.
Creativity	Originality is evident on the topic, question, procedures, data collection and materials used.	Some originality is evident in the topic, question, procedure, data collection and materials used.	Some originality is evident in one aspect of the project.	No originality is shown in any aspects of the project.
Support from Others	The project clearly reflects the student's own efforts. If adult help is given, it is acknowledged and explained clearly on the display board.	The project reflects the student's efforts in combination with an adult. Adult help is acknowledged clearly.	The project reflects much work done by an adult. Help is acknowledged somewhere within the project.	The project was clearly completed mostly by an adult. The student does not acknowledge help.
Age Appropriate	Project highly demonstrates higher level thinking skills.	Project reasonably demonstrates higher level thinking skills.	Project partially demonstrates higher level thinking skills.	Project does not demonstrate higher level thinking skills.
Oral presentation	Student can explain their project independently.	Student can explain most of their project independently.	Student can only explain some parts of their project independently.	Student can not explain any part of their project independently.
	36 - 28 A	27 - 19 B	18 - 10 C	9 - 5 D 1 - 4 F (no project submitted)