Science Fair Project Packet

Student Name:

Topic:

Hypothesis:

General Terms

Some class time will be dedicating to explaining the Scientific Method to students, as well as advice and revisions of research and reports. Please note, Science fair Projects should be student lead, and it is an opportunity for students to select a topic that interests them!

In order to assist your child remain organized throughout this process, I recommend students have the following materials that can be used for their Science Fair Projects…

- Composition Notebook (required)
- USB/Flash Drive
- 3- Ring Binder
- Loose-leaf Paper
- Four Dividers with the following labels
    - Topic
    - Experiment
    - Results
    - Conclusion

DATES TO REMEMBER

- Fri, Jan 15, 2016 - Deadline for Submission of Senior Project Scientific Review Committee(SRC) Paperwork
- Fri, Feb 19, 2016 - Deadline for Submission of Elementary & Junior Project SRC Paperwork
- Mon, March 7, 2016 - Deadline for Registration for All Projects
- Fri-Mon, March 18-21, 2016 - Flint Regional Science Fair, Kettering U.
  - Fri., Mar. 18, 2016:
    Project set-up between 3:00-6:30 pm at Kettering University
    Setup Deadline: 6:30 pm
    Preliminary Judging
  - Sat., Mar. 19, 2016:
    Judging interviews in the morning/early afternoon
    Open viewing after judging (usually 2:00 p.m.)
  - Sun., Mar. 20, 2016:
    Open viewing and media interviews
    1:30pm - Elementary Award Ceremony
    3:15pm - Junior & Senior Award Ceremony
  - Mon., Mar. 21, 2016:
    Projects on display for school field trips.
    Project removal 3:00-7:00 pm.
    Project Display Area teardown begins at 7:00 pm sharp!!
- TBD - Michigan State Science and Engineering Fair
- May 8-13, 2016 - International Science & Engineering Fair (ISEF), Phoenix, AZ

http://www.flintsciencefair.org/index.php/about-frsf/schedule-and-dates.html

Genesee Academy Middle School Science Fair Project Detailed Calendar

Event	Due Date	Point Value
Hypothesis Proposal Slip and Variables Due	December 5th	16
Materials and Procedures	January 16th	20
Data Tables and Graphs	January 30th	25
Analysis and Conclusion	February 25th	25
Bibliography	February 27th	10
Display board, Log Book and Presentation	February 27th	34

Total 130 Points

Science Fair Proposal Form

Students must obtain approval for their Project Topic and Hypothesis. This is outlined below, and must be signed by parents **before** they are turned in for teacher approval and grading.

----------please cut on the dotted line----------

Science Fair Topic Proposal Slip

Student Name: _____

Chosen Topic: _____

Parent Signature: _____

----------please cut on the dotted line----------

Science Fair Proposal Form

Student Name: _____

Science Fair Hypothesis

Hypothesis: **If** _____

_____

then, _____

_____

Science Fair Variables

Independent Variable: _____

Dependent Variable: _____

Control Variables: _____

_____

Science Fair Question

Question: _____

_____

_____

Parent Signature: _____

What is Science Fair?

Science Fair is a Project which involves doing an experiment using the scientific method. Students will select the topic, conduct research on their topic, carryout their experiment, and collect data from experimentation to write a conclusion. Projects will be graded in school, and later students will move on to the Flint Regional Science Fair to be judged.
Your final Project will be a Poster, Report and Log Book. Your project and the display you present at the Fair must contain:

- Title—what your project is about
- Hypothesis –what you expect to find
- Procedure – how you do your experiment
- Data/Results – the results of your experiment /or the answer is
- Conclusion– what you actually found and learned

How to get started

Step 1: Pick a Topic

Pick an area of science, math or technology that interests you. You can use the following sources for Science Fair research ideas…

- Society for Science and the Public
  http://www.societyforscience.org/page.aspx?pid=291
- Mozaic Magazine Science Article Archive can help you look up articles on scientific topics
  http://www.mosaicsciencemagazine.org/index.php
- Science Buddies- a non-profit organization providing science fair ideas, resources, answers, and tools. Including a Science Fair Project Guide and an Ask an Expert online bulletin board, staffed by volunteer scientists and top high school students.
  http://www.sciencebuddies.org/
- Society for Science and the Public (SSP)'s award-winning science news magazine provides readers a fresh, bold, contemporary feel with crisp, concise editorial content and detailed imagery.
  http://www.sciencenews.org/
- SSP's award-winning website dedicated to children ages 9-14, their teachers and parents. Many younger and older visitors also enjoy its pages. It offers timely, interesting news stories and features, accompanied by suggestions

for hands-on activities, books and articles to read, and Web resources. SNK attracts over three million visitors annually.

http://www.sciencenewsforkids.org/

Additional interesting science-focused educational resources:

- The Archimedes Initiative - An effort formed to promote science literacy and increase the number of scientists and engineers in the United States.
  http://www.archimedesinitiative.com/
- Inspired by Education - Intel's online community of people sharing their stories with the hope of becoming a catalyst for action and a voice for change in global education.
  http://www.inspiredbyeducation.com/
- The National Science Digital Library - An online library for those interested in education and research in science, technology, engineering, and mathematics.
  http://nsdl.org/
- USA Science & Engineering Festival - SSP is proud to have been an Official Partner of the inaugural USA Science & Engineering Festival held in Washington, D.C. in 2010 and the most recent Festival in 2012 where over 150,000 attended.
  http://www.usasciencefestival.org/

Step 2: Research Your Topic

Research what is already known about the topic. Narrow the scientific problem/ topic to a specific idea. Do enough research so that you understand your topic well enough to explain it with all of the scientific terms relevant.

Step 3: Choose a Question

Come up with a question that could be answered experimentally
Talk with your teachers, parents or neighbors who know something about what interests you.

Step 4: Plan Your Experiments

Develop an experiment to solve the specific scientific problem you've chosen. See the Scientific Method to help plan your experiment.

Step 5: Conduct your experiment

Begin your experimentation following your research plan and any revisions recommended by your teacher. Investigate to test the hypothesis. Make observations and collect data in a project journal (a project journal is required). Interpret the data and observations

Step 6:

Use the data that you collected from your experiment to come to a conclusion. Your conclusion should answer your hypothesis.

Step 7:

Prepare Your Poster and Presentation and Review Intel ISEF Display and Safety Rules (see below). Create the project exhibit board, being sure to follow the display and safety rules. Practice the presentation and prepare to answer the judge's questions. Present the project at your school science fair and/or at an Intel ISEF-affiliated fair.

Display must follow the below requirements…

- Size – project displays must be no more than 48" wide, 30" deep or 108" from the floor
- Check size. Maximum project dimensions inclusive of all materials and supports are:
  Depth (front to back) 30 in. (76 cm)
  Width (side to side) 48 in. (122 cm)
  Height (floor to top) 108 in. (274 cm)

Examples of Typical Size Infractions

Exhibit 1

Objects outside allowed width

Exhibit 2

Objects hanging over front edge

Exhibit 3

Objects outside allowed depth

Typical Infractions

Unofficial abstracts displayed

Inappropriate pictures of animals

No Photo Credits

Step 8: Write the Abstract

Finalize your project for presentation. Write the abstract (required by Intel ISEF). If required for a local science fair, write a research paper.

- A brief, written explanation of the research project, wit of a succinct description of the project's purpose, the procedures followed, the data collected, and the conclusions reached.
- A clear and simple summary statement of the main points of the experiment

A self-contained statement that must make sense all by itself

Step 9: Complete the Required Forms –
Complete the required forms for Intel ISEF and any additional local science fairs.
http://www.flintsciencefair.org/images/pdfs/2014_FRSF_Supplemental_Registration_Forms.pdf
For further information about why SRC forms are required please see:
http://www.sciencebuddies.org/science-fair-projects/project_src_gettingstarted.shtml

Judging Full ISEF Rules and

Rules

- Safety – No Petri dishes with microorganisms, no tissue samples and no hazardous chemicals or voltages. You should present your results though pictures and graphs, not do your experiment at the fair
- No food products may be displayed
- For a complete list of rules see: http://www.flintsciencefair.org/index.php/about-frsf/rules-procedures.html

Judging

- Projects are judged on:
  - Creative Ability
  - Scientific Thought/Engineering
  - Thoroughness
  - Skill
  - Clarity

Tips and Advice

Further Resources
For further Guidance see the INTEL ISEF Student Handbook
https://member.societyforscience.org/document.doc?id=12
You can also navigate the Flint Science Fair Home page
http://www.flintsciencefair.org/

Consult Your Teacher
Discuss the project with your parents and teacher. Review with them the International Rules as well as the specific rules that might apply to your type of research. For example, if you are working with human subjects or animals or hazardous substances, specific rules apply.
Ask your science teacher for help. Don't be shy! Don't be afraid to seek help from several sources and to use the resources that are at your disposal.

ADVICE FROM ALUMNI
Your presentation board should be appealing to the eye and should explain both what you did and what you found. Pictures are very helpful and often say more than words. Diagrams are also very useful as they allow the public to follow your train of thought easily and without confusion. Avoid putting up your entire written report; try explaining your project visually with graphs, diagrams, pictures and subtitles. Use color to separate ideas and arrows to direct your audience. Avoid buying expensive presentation tools. Your artistic touch is much more appreciated and shows your involvement in the project. Make sure your posters clearly outline what your project is about. You should be able to get what the project is, how it works, and how it was created from the posters.
Have your display board look professional and not too crowded. Remember that large boards do not always indicate good projects.
You will see a tremendous range of backboards at the Intel ISEF. Some will be equipped with remote controls, projection screens, fancy lights, or even personal power supplies. Some will look like they were assembled in an hour, because in many cases they were. Remember, people come to the Intel ISEF from all around the world, and sometimes they can't ship their completed backboards, and have to build them on-site. While it may seem that being in this position puts you at a serious disadvantage, don't worry. The reality is that the judges are keen enough to recognize good science, as long as it is presented reasonably well. The most important part of your presentation is verbal, and few judges will actually read most of your backboard. My advice is

to not devote too much time to making your backboard look good, and to spend that time on your research.

Rehearse Your Presentation
ADVICE FROM ALUMNI
Do not memorize your presentation. I repeat, do not memorize your presentation. You should target your presentation to your audience every time, and this means changing it. To do this, of course, you have to know something about your audience. I suggest you use the first minute or two of your time to ask your judge about his background. You may learn, for example, that the last time your physics judge saw anything related to your project was in college, and that he's spent the last 30 years doing an entirely different kind of research. Or, you could find out that your military judge really wants to know if your project can help build a better computer (perhaps for nuclear weapons simulations, but not necessarily so).
Relax. The judges are usually are friendly, and they aren't out to make mince meat of your project. Just tell them what it's about naturally, and answer their questions. Practice in front of a mirror and try to eliminate "ummm" from your speech. Don't spend too much time explaining your project so that the judge will have plenty of time to ask questions. Be confident in yourself. Look professional, smile, and relax.
I've learned through experience and friends that the more enthusiastic you are about your project, the more excited the judges will be about it. Also, make your project appear wonderful, because in a lot of ways it probably is, but also remember the limitations of your project. Recognizing the limitations of data is a key to almost any scientific pursuit. Rehearse, rehearse, rehearse. The best presentations are made by the groups most comfortable doing them. Anticipate questions that might be asked. Be prepared.
The oral presentation is also very important. Make sure you speak clearly and that you take the time to ask your audience if they have any questions. It is important to cover everything briefly, even your failed attempts, and to do so in a logical pattern. Don't spend too much time on one thing. If you are working with a partner, take your turn explaining the project and switch every five minutes or so. This way, it allows your audience to differentiate between sections and will add energy to your presentation. Teamwork is essential. Work together and help each other out.

Enjoy the Experience!

ADVICE FROM ALUMNI

Don't participate in science fairs for the awards. Don't do science for the recognition. Don't compare yourself to anyone else and don't force yourself to do it. Do it because you love it and because you can make a difference. Help your community and contribute to society. Learn through your experiences and discover the world around you. Such is the true reward of science.

Don't be afraid to try something even though it might not work. Things rarely work the first time. Learn from your mistakes, discover as you try different things, and never give up. Remember that science fair is supposed to be fun and don't let it stress you out too much and good luck to everyone!