

4. Preparing Your Exhibit

Upon completion of the experiment, students should prepare to present their projects. Specific details are available in the Student Handbook and online. The following are general expectations by grade level for both general science fair and engineering/computer projects:

Grade K-5 presentations should include:

1. a visual display of the experiment and the results,
2. a separate, written project summary* (this may be dictated for younger students), and
3. a brief (2- to 3-minute) oral presentation to and interview by judges. (Oral presentation is optional for K-2, but the interview is not.)

Grade 6-12 presentations should include:

1. detailed records (a journal or logbook),
2. a written report* (including an abstract),
3. a visual display of the project, specifying all steps of the scientific method, and
4. a brief (2- to 5-minute) oral presentation to and interview by judges.

*These are due one week prior to the fair if you are being judged.

5. Attending the Fair

Judged students should arrive by 8:30 a.m. and have their displays set up before judging begins at 9:00. Projects are grouped by grade for judging, with group projects being judged at the grade of the oldest student. All judged projects receive ribbons.



Non-judged students should arrive between 9:30 and 10:00 a.m. to set up their displays. All non-judged projects will receive certificates of participation.

All students should be at their displays between 3:00 and 4:00 p.m. during public viewing.

Once again, Villanova professors will be offering science demonstrations throughout the day for all GPHSF participants, and FLL teams will be demonstrating their robots. Don't miss it!

Advanced Competition

Older students (grades 6 to 12) who wish to compete at the county and regional levels (and ultimately at ISEF) must complete additional paperwork prior to beginning their experiments. Instructions and necessary forms may be found on the web at www.sciserv.org. Copies of completed Forms 1, 1A, RPA, & 1B (other forms may be necessary, depending upon topic) should be returned to the GPHSF Director *before* the experiment begins, but no later than **December 1, 2005** if project needs special approval. (You must keep the original documents.)

It is highly recommended that all students in grades 6 to 12 complete and submit the ISEF paperwork before beginning their experiments, even if further competition is not anticipated, for the following reasons:

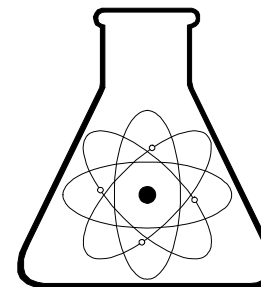
1. A student may change his or her mind about competing at higher levels after a positive homeschool fair experience.
2. The finished project may be of exceptional quality and capable of advancing and perhaps winning scholarships.

In these cases, the project would be ineligible for competition at county (or higher) levels if the paperwork had not been completed prior to beginning the experiment. Don't risk a missed opportunity; fill out the paperwork ahead of time just in case.

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Greater Philadelphia Homeschool Science Fair

For homeschoolers
in grades K through 12

February 2006
9:00 a.m. to 4:00 p.m.

Mendel Hall
Villanova University
Villanova, PA

For more details, visit:
www.fair.science-resources.org

The Greater Philadelphia Homeschool Science Fair (GPHSF), now in its sixth year, brings together homeschoolers from Philadelphia and the surrounding counties for science competition.

Why a homeschool science fair?

Children of all ages benefit from putting together a science fair project. We all know that science should be hands on and experiment based whenever possible. In addition, the process of designing, implementing, and presenting a science experiment results in a much deeper understanding of the specific science topic and of the scientific process in general. Students also learn broader skills such as research, time management, graphic display, and oral presentation, which have applications in many areas of life.

Participating in a homeschool science fair gives 6th to 12th grade students a chance to practice presenting their science projects before entering a more competitive, county-wide science fair (if they so desire). Any improvements recommended by our judges (or their peers) may then be made prior to the county fair. For younger children, this may be their only opportunity to participate in a science fair.

Basic Steps

1. Choose your experiment.
2. Register before January 9, 2006.
3. Conduct your experiment.
4. Prepare your exhibit.
5. Attend the Science Fair!

1. Choosing Your Experiment

There are countless experiments to perform; how do you choose one? Consider these questions: What topics are you studying for science this year? What interests the student? What is possible and affordable?

Choose a topic, then do some research to come up with an interesting question. Based on what you've read, what do you think will happen?

Must my child do an experiment, or may we simply display a project we have worked on?

While scientific displays are useful for learning certain concepts, the emphasis of this fair is *doing experiments* using the scientific method. Experiments will score higher than demonstrations or models. Keep this in mind when planning your project!

An exception to this would be an engineering or computer project. These involve developing new technology or creating an innovative program or solution and are judged by different criteria. (Further details are available online.)

2. Registering

A registration fee of \$5 is due with the registration form *before* you begin your experiment, but no later than January 9, 2006. (The registration form may be copied for additional children.)

Groups of 2 or 3 may work together on one project, but each student must register separately. K to 5 students may also choose not to be judged.

If you would like to receive a hard-copy Student Handbook, **please enclose \$1 for each handbook** requested. Visit the GPHSF web site to see all the guidelines from the handbook, plus hundreds of project ideas, instructions for entering county science fairs, and more. PDF versions of the handbook are also available online.

Restricted Topics

For grades 6 to 12: Any experiment involving vertebrate animals, human subjects or tissue, controlled substances, or pathogens will need additional paperwork and prior approval before starting the experiment. (This is part of the ISEF paperwork -- see "Advanced Competition" box.)

For grades K to 5: *Experiments involving bodily fluids, human tissue, controlled substances, or pathogens are prohibited.* Experiments involving human subjects, vertebrate animals, or animal tissue are strictly limited and require additional paperwork (available online) and prior approval.

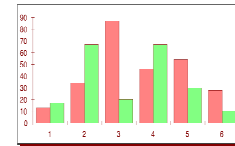
For all grades: Copies of all required forms must be submitted to the GPHSF Director before the experiment begins, but no later than December 1.

3. Conducting Your Experiment

General Science Fair Projects

Here are the basics of the **scientific method**:

1. **Ask a question** that can be answered by an experiment. Be sure that the question cannot be answered by a simple "yes" or "no." Instead, it should be answered by measuring something (size, time, rate...)
2. **Make a hypothesis** (an educated guess based on research) about what will happen.
3. **Design your experiment.** Each experiment should be repeated, changing only one aspect (or "variable") each time. Make sure that all other variables are kept constant (or "controlled").
4. **Collect data** (i.e., perform your experiment). Take multiple measurements, just to be sure. Put this information in a table and make a graph.
5. **Discuss / explain your results.** Find patterns in your graphs. What could have caused them?
6. **Draw conclusions** from your results. This includes answering your original question and stating whether your hypothesis was correct. (Discovering that your hypothesis was incorrect does not mean that the experiment was a failure!) Other conclusions could include how your results may affect real life.



Engineering / Computer Projects

Visit the GPHSF web site for details about engineering or computer projects (gr. 6-12 only).



Tips for a Successful Experiment

- Start early.
- Measure something.
- Change only one variable at a time.
- Keep records of everything.
- Summarize your data in charts or graphs.