



SCIENCE FAIR GUIDELINES AND TIME REQUIREMENTS

It is vital to create a reasonable timeline with specific goals and due dates. All projects will have to be completed in the STEM Wizard system by the deadline in January. Student Research at middle and high school level is a very involved process, requiring a lot of preparation before students are even allowed to start experimenting. This is a general guideline for the process.

Early September (1 week)

Students -

- Choose a Topic: This is often the most difficult process. Students will need guidance. Students should be given assignments to be discussed in class (see “**Topics for Discussion**” attachment). The trick is to forget about science for a moment, try to discover each student’s passion and interests. Students doing research on a topic they enjoy will make them more dedicated and make the process more rewarding. Once they have identified a hobby or an interest, it is easy to find the science involved (science is in everything).

Mid September (2 Weeks)

Teachers -

- Start student registration in STEM Wizard. Start obtaining parental permission for each student.

Students -

- Do background research on selected topics. This is important! Students should learn as much as they can about their topic and all science related to it. That way they don’t repeat someone else’s experiment or mistakes. They should become experts in their topic before they start experimenting. The bibliography should contain at least 5 sources.
- Make a copy and start filling out the [Student Research Plan Template](#) as they work on their project.
- Formulate a specific question, hypothesis or engineering goal. It should be very narrow, testable, and focused. Start thinking about a procedure and how to test it.
- Write a rationale about why the experiment or engineering goal is important. Explain how the research could affect the real world.
- Think of a good scientific title for the project that is descriptive. A judge should be able to tell what a project is about, just by reading the title. Titles should NOT be creative, they should be DESCRIPTIVE:
 - Bad Example (1): “Magnetism vs. Plants”
 - Bad Example (2): “Got Magnets?”
 - Good Example : “The effect of 100 gauss magnetic field on the growth rate of Phaseolus vulgaris over the period of 10 days”

In the above “good” example, notice how the title is very specific to what exactly the student is testing:

- 100 gauss magnet: (typical refrigerator magnet with a specific strength of 100 gauss).
- *Phaseolus vulgaris*: Scientific name of the particular plant the student tested
- 10 days: The specific time scope of the experiment

Early October (2-3 Weeks)

Students -

- Complete your research plan, what you intend to do, what materials you will use and step by step instructions as well as how you will analyze the data. This should all be written in future tense, because the project is not done yet. Include at least 5 legitimate references (bibliography) from where you retrieved your background research. References should be in APA format. . They can be web based but should be real peer reviewed publications. “Google” or “Wikipedia” are not valid references.
- If the research involves human participants, vertebrate animals, microorganisms, hazardous materials/activities/devices, or is a continuation from a previous science fair experiment, students need to fill out the extra information for those sections on the [Student Research Plan Template](#).

Teachers -

- Review all research plans and give students feedback.

Mid October (2 Weeks)

Students -

- Use the rules wizard in STEM Wizard to determine which forms you will need. Download those forms and make sure to get the proper signatures.

Teachers/SRC/IRB -

- Remember to check for [ISEF rule](#) violations when reviewing project paperwork. For example, bacteria/mold can NOT be cultured at home.
- Encourage students to make corrections as needed until all projects are approved.

Students -

- Upload all completed/signed paperwork to STEM Wizard.

November - December (Varies)

Students -

- Begin the actual experimentation. The amount of time a student needs will depend upon the study.
- Collect data and take photos.
- When complete, students will analyze and summarize their data and write an Abstract (brief summary of the project including their question, hypothesis or engineering goal, general procedure and conclusions). The Abstract will be 250 words or less.

Teachers -

- Monitor any students who are required to do their projects at school.
- Review data analysis, conclusions, and abstracts.

Early January (1-2 Weeks)

Students -

- Create their project boards following the [ISEF Display and Safety Regulations](#) to help them present their information to the judges. Remember that GARSEF does not allow demonstration items in the exhibit hall, only boards, binders, laptops/tablets, and project paperwork. Students should practice a two minute presentation that explains their project. A good presentation will NOT be a memorized speech. Students should present as if they are teaching the subject to others. Judges will interact, ask questions, etc. A student will have about 10 minutes to present and answer questions from each judge.
- Complete any steps left in STEM Wizard.

Teachers -

- Review project boards and all project documentation. Give students feedback.

Mid January (2 weeks)

Teachers -

- Hold a School Science Fair to select your winners and give students a chance to practice getting judged.
- Select your Winners following STEM Wizard guidelines by the deadline.

Students -

- Participate in the School Science Fair.
- Complete STEM Wizard Registration for the Regional Fair if advancing by the deadline.

February

- Teachers - Check with students to make sure they get SRC approved and upload their Submissions for Judges Review
- Communicate with parents and students about check-in, set up, judging, and the award ceremony

Students -

- Make any changes requested by the SRC and reupload corrected paperwork until you are SRC approved.
- Complete all Submissions for Judges Review prior to the deadline.
- Prepare for judging.
- Make plans to attend all of the fair including set up, judging, and the award ceremony.

Topics for Discussion

1. List three of your favorite hobbies or things you enjoy doing.
2. If you had magic powers, list three things you would do to change the world.
3. If you were a great inventor, list three things you might create or make better.
4. What is the most fun thing you have ever done?