Minimum Quality Standards for Synopsys Championship Projects

Find the type of project you are doing from the list below and review the minimum requirements for project acceptance. Make sure that the information described in the requirements list is included in the Research Plan attachment of your application.

Types of Science Fair Projects

Science Project: investigates the effects of changes or answers the question "Why?"
Engineering Project: solves a need or problem, and includes measurements of success.
Product Testing Project: tests and compares similar items using measurable endpoints.
Demonstration Project: shows how something works *[not accepted at the fair].*

Science Project minimum requirements

1. Subject: defines a testable question that begins Why... or What is effect of a change in X on Y? (for example, 'what is the effect of a change in the amount of sunlight on the growth of tomato plants').
2. Bibliography: include references from your literature research.
3. Hypothesis based on your library research and knowledge. It is your best estimate of what will happen.
4. Experimental design
   - Define a <u>control</u> (a "standard" group) to which all test groups will be compared.
   - Define <u>test groups</u> where only one variable differs from the "control" group.
   - Define the measurable <u>endpoint(s).</u>
   - Each test group should contain a minimum of 3 objects being tested (seed, plant, rat, etc.)
   - Plan to change only one variable in each test cycle. However, change the variable in several ways (several concentrations of a chemical, several temperatures, or several time points etc.).
   - Report measurements in <u>metric units</u> when possible.
   - Repeat the test more than once to see if your results are reproducible.

Engineering Project minimum requirements

1. Clearly define the problem or need the engineering project will solve.
2. Include Bibliography from your literature research.
3. List design criteria and design constraints
   - Physical and functional characteristics of the design (shape, weight, etc).
   - Design limitations (cost, time, available materials, etc).
4. Clearly state success criteria. What will you measure to see if your design worked?
5. Report measurements in metric units where possible.

Product Testing Project minimum requirements *[Grades 6 9 only]*

1. Clearly identify what kind of item (soap, fabric, etc.) you plan to test.
2. Define a test group of at least three similar items (Grades 6 and 7) or four similar items (Grades 8 and 9).
3. Include test criteria that:
   - Define what will be measured.
   - Describe how you will take measurements.
   - Report measurements in metric units, when possible.
   - Define criteria for "the best" (cleanest, largest, coldest, etc).
   - Repeat the test more than once to see if your results are reproducible.

Demonstration Projects show or explain "how something works".

Demonstration Projects are <u>not accepted</u> at the Synopsys Championship. What interests you about your project? Can you channel your interest into a Science, Engineering, or Product Testing Project? Ask your teacher for help. A demonstration often can be turned into an experimental science project by asking how something (another factor) affects the <u>functioning</u> of the item. Also, if a student likes to build things, a demonstration might become an engineering project.