Project Requirements Summary

The "Student Guide to Science Day" on http://www.ohiosci.org/students is a wonderful source. Its appendices which start on page 15 have summaries, check lists and other vital information. Please read the Student Guide. The paragraphs below are partial excerpts from the "Student Guide to Science Day", just to help you get started.

Required Research Plans
All students who participate in District and State Science Days shall complete student research plans prior to beginning their experimentation or research trials. Modifications in the plans are permitted during the process of research. The modifications must be prepared and dated as a research plan. If the modifications involve new protocols that must be approved before experimentation, it must be approved before the student resumes experimentation. The initial research plan must be kept if any data obtained before the modification will be used in the final project.

A student research plan shall include the name and address of each student involved in the research, the teacher's name or name of research supervisor, whether the project is a continuation of work or a new project, where the work will be done (home, school, research institution, industry, or in the field), project title, research question(s) or problem, hypothesis or technological design statement, experimental methods or procedures, and at least five major references specifically applicable to the proposed research; e.g., science journal articles, books, or internet sites. For internet sites, research plans must cite the complete URL, a title of the report, the name of the author if known, and the date of the publication or update of the site.

If the proposed research involves vertebrate animals, then the research plan must (1) provide a detailed justification for their use, (2) briefly discuss non-vertebrate alternatives and (3) give an additional animal care reference for the species you are using.

Research Notebook
Students doing research projects are required to keep a bound research notebook from the very beginning of gathering ideas and references from which information will be obtained to write the research plan and eventually write a research report. Record the date on the page every time you record something in the notebook. When you begin your experimentation, be sure to record experimental setups and conditions, observations, measurements, calculations, graphing results, discussions of the results and conclusions. Include other records such as photographs and notes of discussions with your supervisor, advisor or mentors. Your judge may ask to see the records you have of your research. See this link for What makes a great science lab notebook:
http://www.sciencebuddies.org/mentoring/project-laboratory-notebook.pdf

Importance of Documentation of Original Ideas
Keeping a good research notebook is extremely important for students and for professional scientists especially if they ever apply for a patent. Record any original thoughts, concepts or procedures in the bound notebook, with numbered pages. Sign and date those pages and have an adult witness sign and date the page(s) to attest to the event. Use or disclosure of this written record may be required if you ever apply for a patent and may help assure your claim of originality.

Research Report Required
Each project must include a research report covering in detail all of the work, references consulted, and acknowledgment of assistance received. The experimental data, statistics, notes, and computations should be recorded in a research notebook. The report should include a description of the work, the results, and the conclusions. This report should follow an accepted form of technical reporting and be checked for correct punctuation, spelling, and grammar preferably by an English teacher. If possible, the report should contain illustrations in the form of photographs, sketches, graphs, data tables or charts

that contribute to the effectiveness of the material presented. The Ohio Academy of Science recommends the following format for sections of the research report:

- Title page including the date and name of student
- Table of contents [optional for reports fewer than 10 pages]
- A single paragraph abstract with project title and name of student (250 words or fewer)
- Introduction-(background, problem and hypothesis or technological design statement)
- Methods and materials used to study problem
- Results including an analysis of collected data with graphs, tables, photographs and diagrams to illustrate investigation
- Discussion including conclusions and implications for further research.
- References or Literature Cited. **Do not use the term bibliography**. Technically a bibliography is an exhaustive list of perhaps thousands of references on a limited topic and is not used in most scientific reports.

Abstract

Abstracts of 250 or fewer words are required and must be submitted with applications for both District and State Science Days. The abstract must contain a heading that includes a project title and name(s) of the author(s). The heading does not contribute to the word count.

The purpose of an abstract is to provide a summary of the project that will inform interested individuals of the contents. The wording must be written in a manner that any scientifically minded individual, who may not be familiar with the topic, can quickly understand the project's important points.

Summarize in a few sentences:

1. Background information necessary to understand the project and its importance
2. The problem that was investigated and the hypothesis or technological design statement
3. Outline of the materials and methods used in the actual experimentation
4. Summary of the results obtained from experimentation
5. The conclusions drawn from results
6. The importance or potential applications that the research offers

Do not be concerned with including all of the details in the abstract. The key point to remember when writing an abstract is to keep the wording brief and concise. Use complete sentences. Avoid personal pronouns like "I" and "My." Abstracts should provide only information essential to understand the project's basic points and importance. Omit needless words, especially adjectives and adverbs that have no statistical reference or validity.

Oral Presentation

He or she must be able to give a clear and concise oral presentation of his/her project, to answer questions, and to define any terms used. This brief oral presentation should completely summarize the project. The quantity and quality of knowledge attained will be evaluated by this speech. If a question is not clear, the participant should ask the judge to rephrase it. Although the student participant should practice his or her presentation several times, he or she should not attempt to memorize a formal speech.

Expectations of Physical Display

"The score of the student's project may be impacted by the violation(s) if either the physical dimensions or physical items rules are not followed."

A display consists of one lightweight, usually tri-panel, bi-fold, single-sided display board with appropriate information (including graphs, data tables, drawings, sketches, diagrams or photographs), extra copies of an abstract for judges, project research notebook, research reports, research plans and documentation of research protocols. Displays at District and State Science Days are strictly poster format only. Each project shall be limited to one, single-sided display board. This means that the physical models, samples of research materials and/or purely advertising items (whether glued or affixed in any manner to the display or not) cannot be displayed and shall not be brought to District and State Science Days.

SAMPLE DISPLAY (from a presentation by Richard Sundberg)

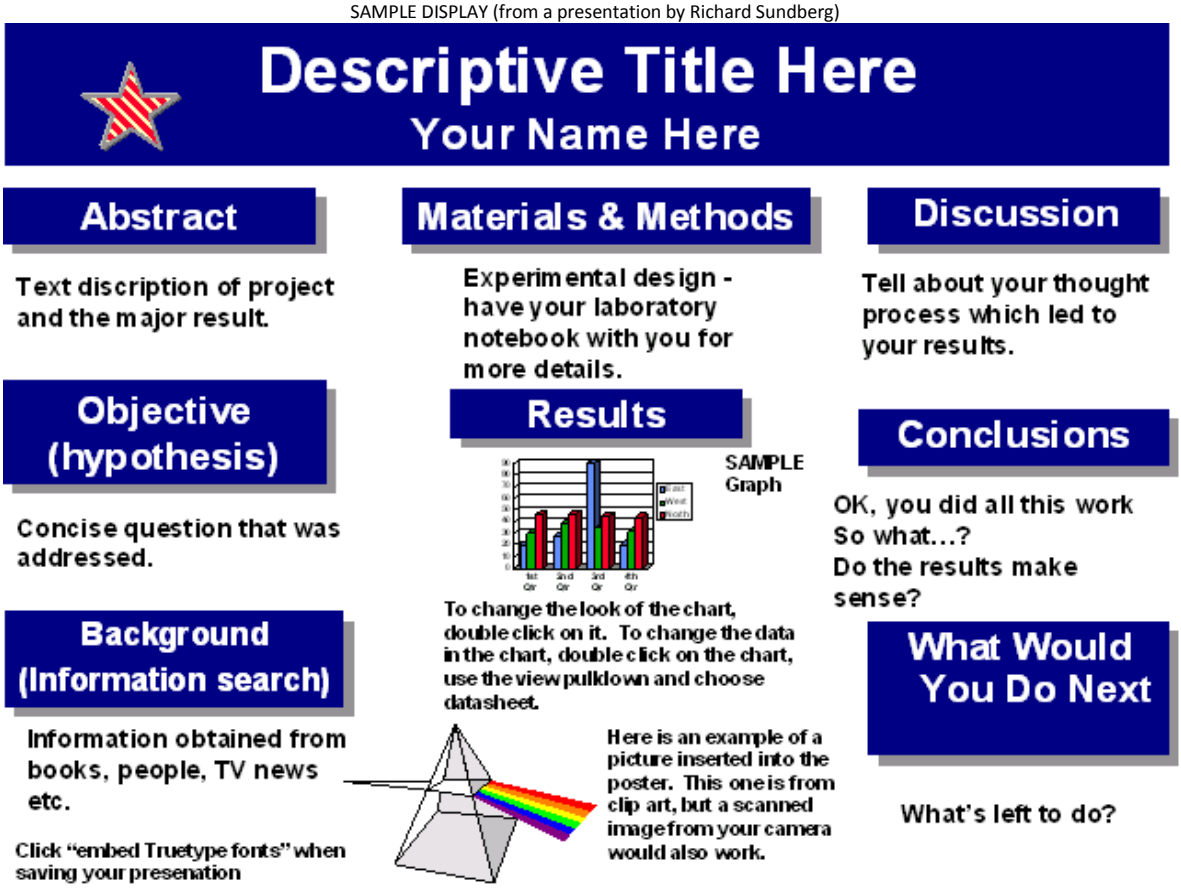

Table-top display dimensions shall not exceed 36" (91 cm) wide by 30" (76 cm) deep. The top of the display shall not be more than 85" (216 cm) above floor level or 55" (140 cm) above a 30" high table. Free-standing floor projects are not permitted at District and State Science Days. Extension of a project beyond the stated limits will result in dismantling or severe modification of the display, and **may disqualify** the student's participation. Note that the physical display size at District and State Science Days is smaller than the size allowed at the International Science and Engineering Fair. **"The score of the student's project may be impacted by the violation(s) if either the physical dimensions or physical items rules are not followed."**