Mountain View Science Fair

Ideas for Your Project Subject

Science covers many general areas from which you may select a topic. Your project may come from one of the following three areas:

Behavioral and life science - the study of living things (humans, plants and animals)

Physical science - the study of physical principles, machines and technology.

Earth/Space- the study of things on earth and in the universe.

Your project will require time and effort, it is important to select a subject you (the student) enjoy. Only age-appropriate material will be approved.

Project ideas may come from:

1. Your own interest and curiosity about science
2. Books, magazines, radio, TV, newspapers or the internet
3. Ideas provided by your classroom teacher
4. Family activities, classes or clubs

If you have trouble choosing a topic, talk with your parents, teacher and other students. Often, talking about ideas with others can lead you to a decision and a very interesting project.

Kinds of Science Projects

Projects may vary a great deal depending on your interests and ability, but generally they will be one of these five kinds.

1. DISPLAYS of materials from books, magazines, field trips and etc. The emphasis is on observing, gathering and organizing information.

Examples of displays:

a. Birds' beak and feet adaptations.
b. The life cycle of an insect.
c. An animal's habitat.
d. The path of blood through heart, lungs and body.
e. Features of the sea floor.
f. Crystals.

2. WORKING MODELS showing understanding of the scientific method or engineering principles involved rather than just building something from a kit.

Examples of working models:

a. The solar system
b. Erosion
c. Yeast action
d. Periscopes (bending of light)

3. COLLECTIONS based upon firsthand investigation (not from a book). The student collects, observes, compares and organizes objects. Objects are identified so information can be shared.

Examples of collections:

a. Insects (or flowers, feathers, fossils, seeds, seashells, etc.)
b. Casts of animal tracks
c. Rocks and minerals

4. DEMONSTRATION of a scientific principle; involves the set-up of equipment and experiments to confirm the principle. The exhibit is set up to encourage audience interaction with the equipment.

Examples of demonstrations:

a. Pulleys
b. How sound is produced
c. Friction
d. Optical illusions
e. How things work (bicycles, switches, fuses, etc.)

5. SOLVE A PROBLEM by conducting experiments. At this level, skills of inductive, deductive and hypothetical reasoning are developed. Answering a question or solving a problem includes use of the five steps of the scientific method.

1. Identify the problem: In the form of a question, specifically state what you are attempting to find out.
2. Hypothesis: This is your best guess of the answer to your question.
3. Experimenting and observation: Design the experiment and set up the equipment to test your hypothesis. Set up your controls and variables.
4. Results: Carefully record your observations and measurements. Use graphics to show the effects of the variables.
5. Conclusions: Tell what you discovered by doing the experiment. Do you have enough evidence to answer your original question? What changes would you suggest if you were to repeat the experiment? How can this conclusion help you in understanding other things?

Examples of problem-solving questions:

a. Which color liquid absorbs the most heat?
b. Which battery is the best buy?
c. What effect does rock music have on pulse rate?
d. Which shape column supports the most weight?
e. Is strength related to lung capacity?
f. How does light (or moisture) affect plant growth?

Suggestions for Preparing Your Exhibit Board

1. The exhibit backboard should be two or three-sided, within the size limitations listed below. When displayed, the project should not occupy more than four feet of length and 16" of depth. Please consult the science fair staff if an exception is needed.

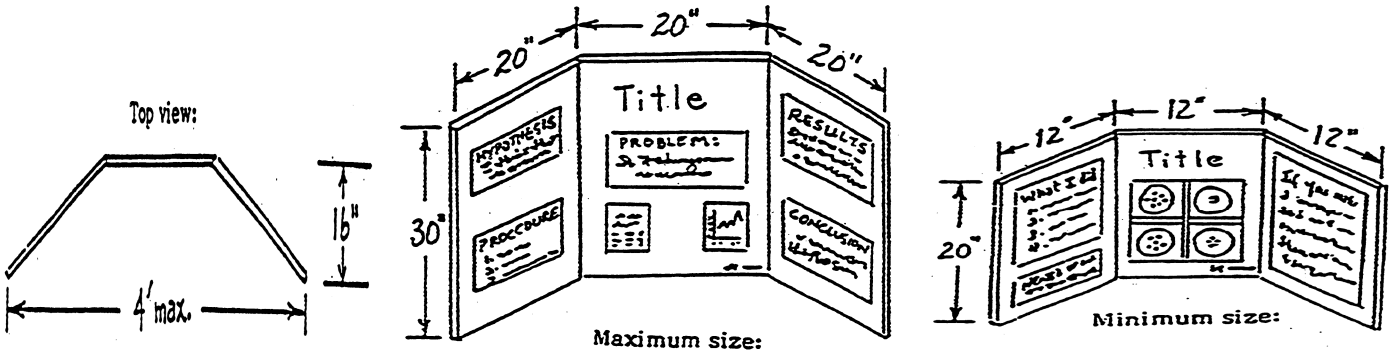
2. Please ensure that your exhibit does not contain any easily broken objects. Projects must pass a safety inspection prior to display.

3. Backboards may be made of any suitable material that is self-standing and able to support its own weight (corrugated cardboard works well).

4. The center panel should contain the project title. Title lettering should be clear and large enough to read from 4 feet away.

5. The side panels should have supporting material: photos, drawings, graphs, charts, etc.

6. If you are doing an experiment it is suggested that you state the Problem on the center panel, put the Hypothesis and Procedure on the left panel, and put the Results and Conclusion on the right.



The Project Plan

The project plan can be very simple and short for younger students, but it should be more detailed and specific for older students. The plan should include the following:

1. Topic or problem to be investigated.
2. Scientific or engineering reason for the investigation.
3. Description of what the student is going to do.
4. Important results or information to be gained from the investigation.
5. Time schedule.
6. List of equipment and materials needed.
7. Bibliography (name of sources used).
8. Prepare to discuss your project with others.

Exhibit Discussion

The following are suggestions for a good discussion of your project:

1. Be able to discuss your research question and experiment.
   a. State your results.
   b. Summarize your conclusions.
   c. Describe what you learned and state how this information could be applied to future learning.
2. Practice what you plan to discuss. Your enthusiasm will make others interested in your project, too. Be polite and prepared to answer questions. Think about how you would discuss your project with somebody much older or much younger than you.

Suggested Science Project Timeline

Your schedule may vary depending on grade level and difficulty of project. This time line will work as a guideline if you begin by Oct. 8th!

Week 1:

1. Choose a topic or problem to investigate. _____
2. Check resources in the school or community library.
3. Contact experts in the field.
4. Gather all the written material you can find on the subject.

Week 2:

1. Begin putting your project together.
2. Start collection or experiment.
3. Begin building display unit.

Week 3:

1. Design visual aids.
2. Take any photographs you need.
3. Complete your research.
4. Consult with experts (scientists, teachers, parents) to check on your progress.
5. Write the first draft of your report. (Optional step.)

Week 4:

1. Continue collecting items for your display.
2. Continue your experiment.
3. Set up your apparatus and test it.

Week 5:

1. Write a second draft report. (Optional step.)
2. Construct background for your display.
3. Design and assemble graphs or charts.
4. Complete lettering for display and mount it.
5. Double-check your written data.
6. Complete your experiment and record data.

Week 6:

1. Complete display.
2. Bring your completed project to the gym for set up to display on Thursday morning November 19th by 8:30 am.
3. Exhibit open house is on Thursday evening from 6:30pm-8:00pm. Exhibitors should be present. Projects must be taken home Thursday evening and should not be left overnight.

Notes: _____

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