

12 Steps to a Successful Science Fair Project

1. Choose a topic or problem!

This is often the hardest part of the whole project especially as you try to come up with something that others have not already done many times over.

Start with things you are interested in. Make up a list: People, animals, plants, diseases, television, computer programming, robotics, music, weather, pollution, nutrition, electromagnets, and so on. Then decide what you are really curious about with some general questions like:

How can plants best be protected from insect pests?

What do the different colours in rocks mean?

Why and how does the weather change?

How can pollution be controlled in my town?

Now you are getting closer to finding the one question that will be the start of your project. Pick out a specific aspect of a topic and develop an experiment to find the answer.

Can companion planting protect roses from aphids?

What are the sources of pollution in the river and how can they be cleaned up?

If you cannot decide on a definite topic, begin by looking through books and magazines for ideas. Your teacher or friend may have a suggestion for you. Since you are going to work on this project for some time, you owe it to yourself to choose a topic in which you are genuinely interested. It might be a topic that you know something about but would like to know more.

Whatever topic you choose, it must be one that you can experiment with yourself. A good way to start it is to ask a question that can be answered only by experimenting. Here are good examples of topics chosen by other students and why they can or cannot be selected as good topic:

POOR TOPIC:

"Motors" The topic is too general. If the student just describes how motors work, they are merely doing a demonstration and not experimentation.

"How Volcanoes Erupt" This topic will not allow experimentation without visiting real volcanoes. If students make a model that erupts, then they are doing a demonstration and not experimentation.

GOOD TOPIC:

"The effect of Chemical Fertilizers on the Bean Plants" or "How do Pill Bugs react to Various Surfaces?" This could be a good topic because it suggests experimentation. Students would use the scientific method to complete the project.

These are just examples of topics. You will have to choose the topic and narrow it to a specific question or problem that allows experimentation.

2. Plan Your Work Schedule

A science project can be a wonderful experience, but it takes TIME, so plan a work schedule and stick to it!

3. Research Your Topic and Keep Good Records

- a) Find out as much possible about your topic. Here are some suggested resource to use:
 - School library
 - Public Library
 - College/university library
 - Newspaper particles
 - Science/chemical companies or labs
 - Forestry/engineering firms
 - Science magazines
 - People (parents, teachers, friends, family, etc.)
- b) Keep a record of everyplace you go, everyone you talk to, and everything you learn!
- c) Keep a bibliography.
- d) Keep a JOURNAL. This is like a science diary where you keep a record of everything about your project. Your first entry should be some notes you take on your reading. Make daily/weekly entries.

4. Plan Your Project

- a) Purpose: what question do you want to answer?
- b) Hypothesis: what do you think the answer will be?
- c) What materials will you need to do your project?
- d) Where will you get the materials you need?

5. Gather the Materials You need

Materials do not have to be expensive or of laboratory quality. Science does not take place in a lab only – practicality is important.

You might need to purchase some items well in advance. Some items may need to be purchased from a scientific supply company. Ask your teacher to place an order for you.

When performing your experiment, keep an accurate word of what, how much, and what kind of materials you used. When writing your list of materials, keep in mind that quantities are important.

Poor listing of materials:

Water
Thermometer
Sphygmomanometer
Test Subjects

Good listing of materials:

25mL of distilled water

130cm thermometer, 0 to 100 degrees Celsius
1 mercurial sphygmomanometer
40 test subjects

6. Do your experiment

Make sure you do a controlled experiment. You want to keep all variables exactly the same and change only what it is you want to observe.

7. Record Your Results:

Use charts, graphs, tables, drawings, photos, etc. if possible.

8. Write a conclusion

This should answer your question. You might not be able to answer your original question. Do not be afraid to say so but be sure to tell what you have learned.

9. Prepare your exhibit (see diagram and guidelines)

Suggestions:

- Put your name and grade on your project
- Make the title LARGE, CLEAR, and NEAT. Labeling should be neat and informative. Explanations should be clear and concise. Add appropriate pictures of diagrams.
- Hint: emphasize the use of green and yellow on your project if it pertains to nature. Use reds, blues, and black if your project is technical.
- Photographs, diagrams, graphs, sketches, etc. help your project "come alive"
- Apparatus used in your experiment should be displayed or used for demonstration purposes.

10. Check your project: make sure it is within the size guidelines and safety regulations

11. Prepare Your Written Report

12. Prepare your Presentation to the judges