

Science Fair 2018 Worksheet

Selecting a Topic:

There are many books and websites that are available to help you in choosing a topic. One of the most important things in picking a topic is to pick one that is interesting to you! Narrow down your topic as specific as possible. You could use a technique commonly used in science classes called the four question strategy. A website to help with four question strategy is

Select a topic that can be tested, not just demonstrated.

My Topic : _____

Stating the Question:

Put your specific topic in the form of a question. Start your background research and literature research. (This is where 6-12 graders should start keeping their required **log**.)

In the elementary grades it is common for science students to approach the project with stating their project title as a question:

How will ___(independent variable)___ affect ___(dependent variable)___ ?

Will ___(independent variable)___ when ___(dependent variable)___ ?

Secondary science students should change their problem statement into a statement for the title:

The effect of ___(independent variable)___ on ___(dependent variable)___ .

My Research Question: _____ .

Definition of Terms:

A few terms that all science fair students should become familiar with are:

Independent Variable: is the factor in your experiment that you purposely change.

Dependent Variable: is the factor that responds to the independent variable, your measurable results of your experiment.

Constants: the factors in your experiment that stay the same throughout.

Example:

How will the amount of water affect the height of a bean plant?

or

The effect of the amount of water on the height of bean plants.

| | |
|-----------------------------|--|
| Independent Variable | Amount of water |
| Dependent Variable | Height of bean plant |
| Constants | Amount of sun light, size of pot, amount and type of soil, ... |

My independent variable _____

My dependent variable _____

My constants _____

Science Fair Project Must Haves:

Log Book:

Your science fair log book is required for students in grades 6-12 (in accordance with State Science Fair requirements) and recommended for students K-5. The purpose of the log book is to show your chronological journey to the end result of your project. You will need to include your thoughts and questions that you will have working throughout your project. It will be an important reference tool when you finish your project. Also, judges will ask to see it.

In your journal you will also show:

- your thought process of deciding on your project idea, including and not limited to lists of other topics and how you selected your final topic.
- your work to create the procedure, material list, etc., prior to performing the experiment
- the diagrams (including rough drafts) of your procedure and any equipment used
- raw data (These are your original data tables and graphs.)
- background research and literature reviews (Information that is printed from websites should be kept chronologically in a 3-ring binder and included as part of your display.)
- your concluding thoughts (Did the experiment turn out as you expected? Why or why not? How would you change what you did? What would you change in your next experiment if you were to do further tests?)

Log book protocols:

- All pages should be numbered, signed, and dated the page that you wrote the entry.
- The log book should be kept in a notebook in which pages can not be torn out (Composition Notebooks with graph paper is recommended).

I have a completed log book.

Project Title:

See above for suggestions in changing your problem statement into a title.

What objects are attracted by magnets?

The effect of different materials on the attraction to magnets.

My Project Title _____

Abstract (grades 6-12):

Three to four paragraphs (250 words) that explain: the problem that was investigated, the hypothesis, the procedure followed in your experiment, a summary of data collected, and the conclusion based on the data.

I have a completed Abstract.

Hypothesis:

Possible answer to your question commonly referred to as your “educated guess.” The hypothesis should be made prior to starting the experiment.

For grades 6-12, this should be stated as an If-then statement.

If an object made of metal is placed within two centimeters of a magnet, then the object will be attracted to the magnet.

My Hypothesis: _____

Background information:

Use encyclopedias, electronic resources, books, and/or magazine articles to find background information about your topic.

ex: Explain magnetism, what is it, how does it work, what kinds of materials are attracted to other kinds of materials.

Keep a running list of all resources used with complete bibliographic information (title, author, date, publisher, web address, etc.) and include in a Works Cited list.

I have used multiple reference sources for my background information.

Materials:

List all materials and equipment used in your experiment.

I have a complete Materials List.

Procedure:

Step by step explanation of how the experiment was done. Anyone should be able to duplicate your experiment by following your procedure.

I have a complete list of the procedural steps.

Results:

Data tables, charts, and graphs to show your results.

I have included the data tables and charts and/or graphs of my results.

Conclusion:

Your conclusion should explain your results and scientific reasoning for obtaining your results. Also include the comparison of your hypothesis to your actual results, your suggested improvements of method and materials, and ideas to expand your project in the future.

I have written a thorough conclusion summarizing my results and recommendations for future expansion.

Works Cited:

List of your all sources used. (Grades 6 – 12, please use MLA format.)

I have a complete Work Cited list.

Acknowledgements:

Thank the people, organizations, and places that helped you and how each helped.

I have a list of the individual and organizations who have helped me.

Poster Board:

Your project needs to be displayed. A tri-fold project board is most commonly used for display. Be sure the type size and fonts are easy to read for someone standing a few feet away. Design your poster board to attractively display all of the important components of your project.

I have a display board that is visually attractive, easy-to-read, and provides a through summary of my project.

Oral Presentation:

Practice, practice, and more practice! You will be meeting several judges during the science fair and also other adults who are interested in hearing about your project. You should state your problem, a quick description of how you tested (procedure), the results that you found, your scientific explanation of the results, and ideas for further study of your project. The judge may have further questions for you, so know your subject! Practice giving your presentation aloud to other people so you are comfortable speaking about your topic and answering questions.

I have a prepared speech and have practiced it several times.