



Science Project Proposal Form

Name: _____

The question I plan to investigate in my experiment (*please phrase as a question*):

Science Fair Project Question Checklist

1. Your teacher may put some restrictions on projects. Have you met your teacher's requirements?	Yes / No
2. Is the topic interesting enough to read about, then work on for the next couple months?	Yes / No
3. Can you find at least 3 sources of written information on the subject?	Yes / No
4. Can you measure changes to the important factors (variables) using a number that represents a quantity such as a count, percentage, length, width, weight, voltage, velocity, energy, time, etc.? Or, just as good, are you measuring a factor (variable) that is simply present or not present? For example, <ul style="list-style-type: none">Lights ON in one trial, then lights OFF in another trialUSE fertilizer in one trial, then DON'T USE fertilizer in another trial	Yes / No
5. Can you design a "fair test" to answer your question? In other words, can you change only one factor (variable) at a time, and control other factors that might influence your experiment, so that they do not interfere?	Yes / No
6. Is your experiment safe to perform?	Yes / No
7. Do you have all the materials and equipment you need for your science fair project, or will you be able to obtain them quickly and at a very low cost?	Yes / No
8. Do you have enough time to do your experiment more than once before the science fair?	Yes / No
9. If you are planning to enter a science fair outside of your school: <ul style="list-style-type: none">Does your project meet all the rules and requirements for the science fair?	Yes / No
<ul style="list-style-type: none">Have you checked to see if your science fair project will require approval from the fair before you begin experimentation?	Yes / No

I have discussed the project idea and the checklist with my parent(s) and I am willing to commit to following through on this project.

Student Signature

Date

I have discussed the project idea and the checklist with my student and I believe he or she can follow through with this project.

Parent Signature

Date

Worksheet

1. What is the question you are trying to answer in your science project?

2. What is the independent variable in your science project?

3. Will the independent variable be measured?

- ☐ Yes
☐ No

If you answered "yes", describe the units of measurement (grams, degrees Celsius, milliliters etc.).

4. List all of the dependent variables in your project and how you will measure them.

5. List all of the controlled variables in your project.

Self-check

To self-check whether or not you have done a good job identifying and thinking through your project's variables, think about the following questions and answer "yes" or "no" honestly.

Is the independent variable measurable?

☐ Yes ☐ No

Can I change the independent variable during the experiment?

☐ Yes ☐ No

Have I identified all relevant dependent variables, and are they all caused by and dependent on the independent variable?

☐ Yes ☐ No

Are all dependent variable(s) measurable?

☐ Yes ☐ No

Have I identified all relevant controlled variables?

☐ Yes ☐ No

Is it possible for me to hold all controlled variables at a steady value during the experiment?

☐ Yes ☐ No

If you answered "no" to any of the self-check questions then your project may not be a good one yet. Go back and:

1. Figure out how to improve your experimental design to the point that you can honestly answer "yes" to all of the questions.
2. If you can't do number 1, you may need to ask your teacher or another adult mentor for help. On rare occasion some of these questions may have a "no" answer even for a very good project. If you think this is the case, be prepared to explain your thinking to your teacher/adult mentor. Otherwise, you may need to consider choosing a different science question for your project.



Background Research Plan Worksheet

Name: _____

1. What is the **question** you are going try to answer with an experiment? _____

2. List the **keywords** and phrases from your question and the topic in general. (Hint: Use an encyclopedia to help you)

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

3. Now use your keywords to build some **questions to guide your background research**. Develop at least two or three from each “question word.” Don’t worry about whether you already know the answer to the question—you’ll find the answers when you do your background research. And don’t forget to “network” with knowledgeable adults who can help guide you toward good materials!

Question Word	Possible Questions (you can think of others)	Substitute your keywords (or variations of your keywords) for the blanks in the previous column. Write down the relevant questions and use them to guide your background research.
Why	Why does ____ happen? Why does ____ ____? Why _____?	
How	How does ____ happen? How does ____ work? How does ____ detect ____? How does one measure ____? How do we use ____? How _____?	

Question Word	Possible Questions (you can think of others)	Substitute your keywords (or variations of your keywords) for the blanks in the previous column. Write down the relevant questions and use them to guide your background research.
Who	Who needs ____? Who discovered ____? Who invented ____? Who _____?	
What	What causes ____ to increase/decrease? What is ____ made of? What are the characteristics of ____? What is the relationship between ____ and ____? What do we use ____ for? What _____?	
When	When does ____ cause ____? When was ____ discovered? When _____?	
Where	Where does ____ occur? Where does ____ get used? Where _____?	

- To analyze the results from experiments you might need to know some **key formulas or equations**. Think about your own experiment and write down any step or task that requires a formula or equation. Don't worry about whether you already know what the formula or equation is—you'll find the actual equation when you do your background research.

List steps or tasks that may require a formula or equation:

Worksheet

1. What is the question you are trying to answer in your science project?

2. What is your hypothesis?

3. What prediction(s), based on your hypothesis, will you be testing in your science project?

Self-check

To self-check whether or not you have done a good job writing your science project hypothesis, think about the following questions and answer "yes" or "no" honestly.

Is your hypothesis based on information you have gathered about your science project topic?

☐ Yes ☐ No

Can you make at least one clear prediction from your hypothesis?

☐ Yes ☐ No

Are your predictions testable in an experiment?

☐ Yes ☐ No

Does your prediction have both an independent variable (something you change) and a dependent variable (something you observe or measure)?

☐ Yes ☐ No

If you answered "no" to any of the self-check questions, then your hypothesis may not be good for a science project. Consider changing your hypothesis and prediction or asking your teacher or another adult mentor for help.



Science Fair Materials List

A large, empty rectangular box with a thin black border, intended for students to write their science fair materials list.



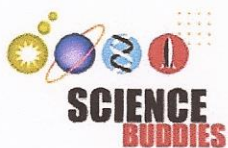
Written Experimental Procedure

(**Use sentence structure**)



Written Results and Observations

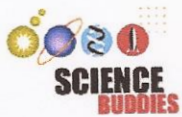
(**Use sentence structure**)



Final Report Checklist

Name: _____

<input type="checkbox"/>	Does your abstract include a short summary of the hypothesis, materials & procedures, results, and conclusion?
<input type="checkbox"/>	Have you used the proper capitalization and punctuation?
<input type="checkbox"/>	Have you checked your grammar and spelling?
	Does your final report include the following key sections:
<input type="checkbox"/>	- Title page
<input type="checkbox"/>	- Abstract
<input type="checkbox"/>	- Table of contents
<input type="checkbox"/>	- Question, variables, and hypothesis
<input type="checkbox"/>	- Background research (your Research Paper)
<input type="checkbox"/>	- Materials list
<input type="checkbox"/>	- Experimental procedure
<input type="checkbox"/>	- Data analysis and discussion (including data tables and graphs)
<input type="checkbox"/>	- Conclusions
<input type="checkbox"/>	- Acknowledgements
<input type="checkbox"/>	- Bibliography



Bibliography Worksheet

Note: You won't fill in every item depending on the type of source. Name: _____

This source is a: <input type="checkbox"/> Book <input type="checkbox"/> Magazine <input type="checkbox"/> Newspaper <input type="checkbox"/> Website <input type="checkbox"/> Other _____			
Author's Last Name		First Name	Middle Initial
Date Published	Title of Publication or Website		
Title of Article (periodicals, encyclopedias, websites)			
Place Published (books only)	Publisher (books only)	Editor (if applicable)	
Edition (if applicable)	Volume Number (periodicals or encyclopedias)	Page Number(s)	
Website is a <input type="checkbox"/> Company <input type="checkbox"/> Organization <input type="checkbox"/> Government <input type="checkbox"/> Newspaper/Magazine <input type="checkbox"/> Other _____			
The URL is http:// (websites only)			Last Date of Access (websites only)

This source is a: <input type="checkbox"/> Book <input type="checkbox"/> Magazine <input type="checkbox"/> Newspaper <input type="checkbox"/> Website <input type="checkbox"/> Other _____			
Author's Last Name		First Name	Middle Initial
Date Published	Title of Publication or Website		
Title of Article (periodicals, encyclopedias, websites)			
Place Published (books only)	Publisher (books only)	Editor (if applicable)	
Edition (if applicable)	Volume Number (periodicals or encyclopedias)	Page Number(s)	
Website is a <input type="checkbox"/> Company <input type="checkbox"/> Organization <input type="checkbox"/> Government <input type="checkbox"/> Newspaper/Magazine <input type="checkbox"/> Other _____			
The URL is http:// (websites only)			Last Date of Access (websites only)

This source is a: <input type="checkbox"/> Book <input type="checkbox"/> Magazine <input type="checkbox"/> Newspaper <input type="checkbox"/> Website <input type="checkbox"/> Other _____			
Author's Last Name		First Name	Middle Initial
Date Published	Title of Publication or Website		
Title of Article (periodicals, encyclopedias, websites)			
Place Published (books only)	Publisher (books only)	Editor (if applicable)	
Edition (if applicable)	Volume Number (periodicals or encyclopedias)	Page Number(s)	
Website is a <input type="checkbox"/> Company <input type="checkbox"/> Organization <input type="checkbox"/> Government <input type="checkbox"/> Newspaper/Magazine <input type="checkbox"/> Other _____			
The URL is http:// (websites only)			Last Date of Access (websites only)