STEM/Computer Science Fair Paperwork

These are instruction pages that can be printed for students completing an engineering project.

ALL SCIENCE FAIR PROJECTS REQUIRE PAPERWORK, TO ENSURE YOU STAY SAFE!

You'll find the forms you need here (you need both CUSEF and ISEF):

1. CUSEF STEM: https://cusef.byu.edu/forms/
2. ISEF STEM Fair forms here: https://student.societyforscience.org/intel-isef-forms.

Forms 1, 1A, and 1B **must be completed by all students**.

The other forms only need to be completed *if the project requires them*, instructions for other required paperwork is listed on Form 1. For example, if my project required strong chemicals, (things other than found in a regular kitchen pantry) then I would be required to have Form 3: Risk Assessment and Form 2: Qualified Scientist.

Each project is different; read through the forms carefully.

Some projects require approval from a Scientific Review Committee (SRC), the SRC is a team of Scientists/Engineers who will double check your STEM Fair Plan and make sure that your project is legal and safe. SRC's take a few days up to a month to approve a project, plan accordingly.

Picking a Topic

Science Buddies (https://www.sciencebuddies.org/) is a great place for beginning ideas, but if you find an idea on Science Buddies you should try to **change it to make it your own.**

Still struggling? Write down a list of 5 things you like to do, think about project ideas for each. Research your ideas online or at a library.

➢ Does someone around you have EXPERTISE in something you're interested in?
➢ Sometimes **Teachers or Professors** will let you interview and ask questions about a subject. (If you're lucky you might work in their lab.)
➢ What's *happening* in your area? Is there anything that needs to be fixed, made, built or improved?

★ **Topic Ideas:**

--Make sure that your engineering project is something *needed or improved*, we don't want to see something that's already been done, nor do we want to see you taking apart a clock, or trying to rebuild something you broke.

Define a Purpose:

Computer scientists ask a question and define a purpose. Though it is better to have a project question and a project purpose, some projects will only have a project purpose:

★ **--Project Question:** What are you going to solve or improve? It can be as simple as 'Can I create a code to improve my alarm clock?'

★ **--Project Purpose:** Clearly define what you will improve and your expected audience. 'This computer science project will improve (design/item)_____

for __(audience) _____.'

Research/References

Research a minimum of 3 references. (Try to not use websites ending in .com) Kid sites are easier to understand. Websites ending in .edu, .org. or college/university websites are wonderful. You can even use a video on youtube as a reference (just make sure it has good information and that you have permission to watch it.)

Books, Magazines, Websites, Journals, Newspaper articles you use should have been written in the last 10 years.

-- Research your computer science project purpose and how it will help your audience, or find an article related to your topic or project question.
--Print the references you find online and highlight the most important parts.

★ **Research:** Use this to guide the writing of your research paragraph:

1. Tell three things you learned about your purpose?
-
-
-

2. What improvements are you trying to accomplish?
-
-
-

3. Tell three things you learned about your audience, who will this help?
-
-
-

4. Did you find any article related to your study? What did you learn?
-
-
-

-- Statements from sources require an in-text citation. They usually go at the end of the sentence or statement you used. Example: (Author Last Name, Year).

In-text citation also look like this:
With a bit of work, the STEM Fair can be fun(Provo.edu, 2020).
According to my STEM Teacher (2020), STEM Fair can be fun.
STEM Fair(2020) said, "Science Fair can be fun."

References

--References go at the very end of your STEM Fair project, but are easier to put together while you do your research.

 I suggest that you use a reference generator, such as BibMe (http://www.bibme.org/) to create your **full references** . APA style is generally used for Science Fair. Create your references page while you complete your research, it will be faster.

Here's the basic format:

Author Last Name, First Name Initial. (Date) Title of Article. Where Published. Publisher. Retrieved from: URL

> ★ **References: (Print the references you made on BibMe and staple/tape them here.)**

Code Design Instructions

A detailed set of instructions telling others how you wrote the code, any issues or problems with your code and what your code is meant to do. You can write this as a paragraph or as a numbered list.

--Keep in mind how easy it will be for others to use your final product.

--Try to write your procedures without using any personal pronouns: I, me, you, us, we, them-- etc. (add more numbers as needed.)

★ **1.**

2.

3.

★

Preliminary Code

Drawings, Pictures, plans for your first code. Include a short materials list of all the things you need to complete your project (i.e. if you are creating code meant to control a robot, tell us which robot you will need). Think through your project-what will you use, then while doing the project add anything you missed.

★

Code and Test

Your first testable prototype! Build your code based on your purpose.
Answer the following:

★ 1. Does it work the way you expected?

★ 2. Is it better/worse than what has already been made?

★ 3. Is it easy to use? Who is meant to use this product-kids, adults, animals, plants?

★ 4. How can you improve this initial code?

Recode and Retest

Your improved code! Did your code work perfectly? Great! If not, improve your code and try again.

★ Design, drawings, pictures, here:

Answer the following:

★ 1. Does it work the way you expected?

★ 2. Is it better/worse than what has already been made, or what you made the first time?

★ 3. Is it easy to use? Who is meant to use this product-kids, adults, animals, plants?

★ 4. How can you improve this second code design?

Most computer science projects will not have a data table/graph, if yours needs them look up the instructions for each in the Science Fair Student paperwork section.

★ **Conclusion:** Answer these questions in your conclusion, if the answers are well written then your conclusion will be complete. Do not give any one word answers to any question.

--Write your conclusion without using any personal pronouns: I, me, you, us, we, them-- etc.

1. What computer science programming steps did you use to complete this project?

2. How is this product/item better than what we already have available?

3. Explain your code, what makes it unique?

4. What would you do differently next time?

5. Did you make any mistakes or did you change anything to improve your project?

6. How is your project useful to others, society, the world?

POSTER SETUP:

Titles should be informative and give an idea of what the project is about.
Generally one word titles are too short and should be avoided.

Purpose Defined	Computer Science Project Title		Conclusion
	Code Design Instructions	Preliminary Code	
Research	Code & Test	Recode & Retest	References

If you are interested in printing a professional poster instead of gluing onto a poster board please be aware that most printing locations require a 24-48 hour processing time (some may even need up to a week to process the request.) You do not need to print on the actual cardboard. Instead, print a poster and use heavy duty binder clips to hold the poster to a science fair board.

Computer Science STEM Fair

Name: _____Teacher:_____

What's Due?	Date Due	Signed/Score
Paperwork Printed and Signed:		
Topic:		
Define a Purpose:		
Code Design Instructions:		
Preliminary Code:		
Code and Test:		
Recode and Retest:		
Data Table (if needed):		
Graph(If needed):		
Conclusion:		
Abstract:		
Poster and Printed Report:		
Presentation		

Final Score: _____
Teacher Notes: