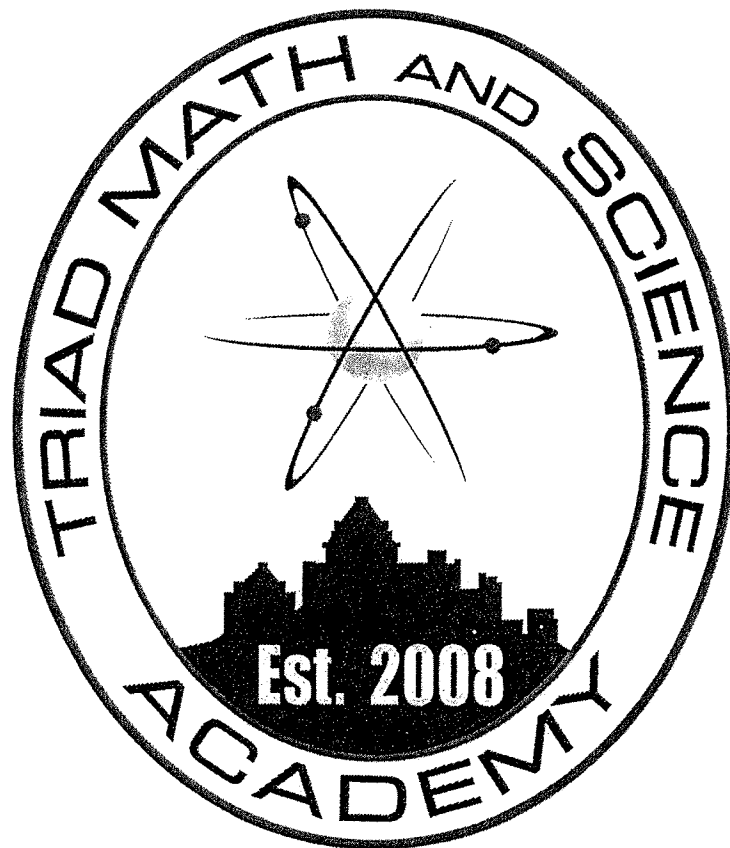


**2016**

**2017**

STEM FAIR GUIDE AND  
FORMS

TRIAD MATH AND  
SCIENCE ACADEMY



# **TRIAD MATH AND SCIENCE ACADEMY ANNUAL STEM FAIR GUIDE**

*Your student will have the chance to solve his or her own science mystery by doing a science project for the TMSA STEM fair, a mandatory assignment for your child's class.*



2016-2017 Academic School Year

Dear Parents,

Your student will have the chance to solve his or her own science mystery by doing a science project for the TMSA STEM fair, a mandatory assignment for your child's class.

Since your student has the chance to pick his or her own science project question, from the physics of making music to the biology of tide pool animals, he or she will have the chance to experience the joy of discovery. When your student starts a science project, he/she will choose a question they would like to answer. Then they will do the research in the library or internet to gain the background information needed to express a hypothesis and design an experimental procedure. After writing a report to summarize the background research, the student will perform the experiment, draw conclusions, and communicate the results to teachers and classmates.

Through time management and project planning, your student will take on the responsibility of completing a project over a minimum of 10 weeks. Your student will discover his or her creativity by brainstorming science project questions and figuring out how to display the scientific process and results. A science project is to ask questions and discover the answers. This is very similar to what all scientists do in their careers.

TMSA will provide your student with sufficient support to succeed as this is part of your student's grade. Teachers will start off with homework assignments, and then we will review the assignments at key checkpoints along the way to make sure your student is on the right track. Secondly we have included in our packets a guide of how to help without taking over your student's project.

Please see attached the form to sign and approve the project your student has selected. If you have any questions please email:

- Mr. Kelleci at [ekelleci@tmsacharter.org](mailto:ekelleci@tmsacharter.org) for the grades 6<sup>th</sup> through 12<sup>th</sup>
- Ms. Cox at [hcox@tmsacharter.org](mailto:hcox@tmsacharter.org) for grades 4<sup>th</sup> and 5<sup>th</sup>

Sincerely,

Mr. Tak,  
Dean of Advanced Studies  
[Utak@tmsacharter.org](mailto:Utak@tmsacharter.org)

Included:

A Parent's Guide to TMSA STEM Projects  
Student STEM Fair Project Schedule



# Parent's Guide to TMSA STEM PROJECTS

## INFORMATION ON THE SCIENTIFIC METHOD

TMSA STEM projects should follow the six-step scientific method. These steps have been provided on the chart below.

## TIME MANAGEMENT SKILLS

Please see your student's STEM FAIR project schedule for all important due dates. Please help your student meet these important dates by getting your family calendar or electronic calendar and input all due dates. TMSA suggests that parents block out times for research at the library, and other STEM fair project related outings.

## HOW TO HELP

During this process your student may face a few bumps in the road. To help, ask questions to help you child figure things out; don't just provide the answers. We suggest using open-ended questions such as, "what else could you do to solve this question?" or "what is preventing you from moving to the next step in your project?" Often times, students just need to think out loud, or talk about what is preventing them from moving forward.

Parents Step by Step Chart to help your student

Project Step	Where to help	What not to do
Ask a question	<ul style="list-style-type: none"> <li>Discuss with your student whether this project seems practical (can they do this on their own)</li> </ul>	<ul style="list-style-type: none"> <li>Picking an idea and project for your child.</li> </ul>
Do Background Research	<ul style="list-style-type: none"> <li>Taking your student to the Library</li> <li>Helping your student think of keywords to search on the internet</li> </ul>	<ul style="list-style-type: none"> <li>Doing an internet search and printing out articles</li> </ul>
Construct a hypothesis	<ul style="list-style-type: none"> <li>Asking how the hypothesis relates to an experiment the child can do</li> </ul>	<ul style="list-style-type: none"> <li>Writing the hypothesis yourself</li> </ul>
Test the hypothesis by doing an experiment	<ul style="list-style-type: none"> <li>Assisting in finding materials</li> <li>Monitoring of when your student uses dangerous items</li> </ul>	<ul style="list-style-type: none"> <li>Writing the experiment procedure</li> <li>Doing the experiment yourself</li> <li>Telling your child what to do Step-by-Step</li> </ul>
Analyze data and draw a conclusion	<ul style="list-style-type: none"> <li>Asking how your child will record the data in a table</li> <li>Reminding your child to tie the data back to the hypothesis and draw a conclusion</li> </ul>	<ul style="list-style-type: none"> <li>Creating a spreadsheet and making the graphs yourself, even if your child helps type in values</li> <li>Stating the conclusion yourself</li> </ul>
Communicate your results	<ul style="list-style-type: none"> <li>If a presentation is assigned, acting as the audience</li> <li>If a display board is assigned, helping to bring it to school</li> </ul>	<ul style="list-style-type: none"> <li>Writing any of the text on the display board</li> <li>Determining the color scheme and other graphic elements</li> </ul>



## TMSA STEM FAIR SCHEDULE

	Assignment	Assignment Description (Note: Students should have at least 12 weeks to do their projects)	Suggested Time to Complete this Step	In-Class Due Date (where applicable)
Step 1	Topic Selection Question (proposal)	Please have your students to complete the proposal form for their project.  The specific question the student will be investigating in the project.	14 days	First draft 10/11/2016  Second draft 10/18/2016
Step 2	Research Plan & Bibliography  Research Paper	The Research Plan is a roadmap of the research questions that need to be answered. The Bibliography is a list of the sources that will be used to answer the research questions. <b>Source Requirement: at least 3 offline sources including one encyclopedia.</b>  The purpose of the Research Paper is to provide information to help understand why the experiment turns out the way it does. It should include: <ul style="list-style-type: none"> <li>• The <b>history</b> of similar experiments or inventions.</li> <li>• <b>Definitions</b> of all important words and concepts that describe the experiment.</li> <li>• <b>Answers</b> to all the background research plan questions.</li> <li>• <b>Mathematical formulas</b>, if any, that are needed to describe the results of the experiment.</li> </ul>	14 days	11/01/2016
Step 3	Variables and Hypothesis	An explanation of which factors will be changed while conducting the experiment and a hypothesis on the resulting impact of the change.	7 days	11/7/2016
Step 4	Materials and Procedures  Conducting the Experiment	A detailed list of the materials that will be used to conduct the experiment and the detailed steps that will be followed while conduct the experiment  There should be a minimum of two weeks here to allow the students to do multiple runs of their experiments. <b>Minimum Trials: 3 runs of experiment.</b> If students are working with plants, they should have 3 plants for each variable tested.	14 days	11/22/2016
Step 5	Data Analysis and Graphs  Conclusions	The analysis of the experimental data. A summary of the findings of the experiment.  An explanation of the results of the experiment.	7 days	12/05/2016
Step 6	Final Report  Abstract paper	A report that collects all the above written assignments in one place plus a short abstract of the project..	7 days	12/12/2016
Step 7	Display Board	The final project board that will be displayed at the science fair.  The date the students must turn in their projects to the teacher or to the school science fair.	3 days	01/04/2017
	School Science Fair			01/07/2017



## STEP 1 - TMSA PROJECT PROPOSAL FORM

Student Name: \_\_\_\_\_

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

### SCIENCE PROJECT CHECKLIST

Circle One

1. Your Teacher may put some restrictions on projects. Have you met your teacher's requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Is the topic interesting enough to read about? Will this project keep your attention for the next few months?	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Can you find three sources of written information on the subject?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Can you measure changes to the important factors (variables) using a number that represents a quantity such as count, percentage, length, width, weight, voltage, velocity, energy, time, etc.? Or are you measuring a factor (variable) that is present or not present? For example: a. Using music on in one trial, then turn off the music in another trial b. USE fertilizer in one trial, then don't use fertilizer in another trial	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Can you design a "fair test" to answer your question? This means, 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?	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Is your experiment safe to perform?	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Do you have all the materials and equipment you need for your project?	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Do you have enough time to conduct your experiment more than once before the due date?	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. If you are planning to enter a science fair outside of your school: a. Does your project meet all the rules and requirements for that fair? b. Have you checked to see if the science fair project will require approval from the fair before you begin?	<input type="checkbox"/> Yes <input type="checkbox"/> 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 they can follow through with this project. I agree to supervise the safety of the project steps that my student performs at home.

Parent Signature \_\_\_\_\_

Date \_\_\_\_\_





## STEP 2 - STEM Fair Background Research Report

Student Name: \_\_\_\_\_

Period: \_\_\_\_\_

The purpose of the background research report is for you to gain knowledge about your STEM Project topic. This way you will be able to interpret the results of your experiment and draw conclusions based on the previous knowledge you gained by writing this report. This report should NOT be your experiment plan/procedure; it should discuss information related to the topic you are studying.

DO NOT provide the expected result of your experiment in this report. In the real world, scientists conduct experiments where no one truly knows the answer or the outcome. If everyone already knew the outcome of the experiment, the scientist wouldn't get paid to conduct it!

Your supporting paragraphs should discuss information about your experiment topic, but you should try to set up the need for your experiment. Pretend you are trying to convince Ms. Cox that your experiment is needed and that you should get paid to do it. For example:

"Although scientists understand much about how plants grow, plant anatomy, and the process of photosynthesis, it is still unclear whether pea plants will grow best in white light, red light, or green light. Optimal plant growth is important to provide enough food for a growing population and serve areas of the world where not enough food grows. Thus, this science fair experiment will test which color of light plants grow the best in."

Lastly, remember that scientific reports are always **written in the third person**.

**Do not use "my" or "I" in your writing.**

For example:

1) Instead of saying "My hypothesis is...", you should say "The hypothesis of this experiment is..."

2) Instead of saying "This research report is about plant growth because plants are an important food source." say "Plants are an important food source."

3) Instead of saying: "I think there will be less plant growth in green light because...", you should say "It is likely there will be less plant growth in green light because..."



**This is a four paragraph report**

Topic: \_\_\_\_\_

**I. Introductory Paragraph**

A. Introductory Sentence: This sentence catches the reader's attention

---

---

---

---

---

---

---

---

a. supporting sentences: These sentences help explain why your topic is important

---

---

---

---

---

---

---

---

a. supporting sentences: These sentences introduce the two supporting paragraphs you will be talking about later in your essay.

---

---

---

---

---

---

---

---





B. Conclusion Sentence: This sentence wraps-up everything you've talked about:

---

---

---

---

---

---

---

---

II. Supporting Paragraph 1: Topic of this paragraph \_\_\_\_\_

1) Introductory sentence:

---

---

---

---

---

---

---

---

Example: \_\_\_\_\_

- 1) Detail:
- 2) Detail:

Example: \_\_\_\_\_

- 3) Detail:
- 4) Detail:

III. Supporting Paragraph 2 Topic: \_\_\_\_\_

Introductory sentence:

---

---

---

---



---

---

---

---

Example: \_\_\_\_\_  
\_\_\_\_\_

- 5) Detail:
- 6) Detail:

Example: \_\_\_\_\_

- 1) Detail:
- 2) Detail:

Example: \_\_\_\_\_

- 1) Detail:
- 2) Detail:

#### IV. Conclusion Paragraph

- 1) Introductory sentence: It is usually best to start with "In conclusion,"

---

---

---

---

---

---

---

---

---

---

- 2) Repeat your examples in general terms

---

---

---

---

---

---

---

---

---

---



3) Repeat why your experiment is important

---

---

---

---

---

---

---

---

---

---

4) Briefly (1-2 sentences) explain what you plan to do for your experiment:

---

---

---

---

---

---

---

---

---

---



## STEP 2 - TMSA Research Paper Checklists

Student Name: \_\_\_\_\_

<input type="checkbox"/>	Have you defined all important terms?
<input type="checkbox"/>	Have you clearly answered all your research questions?
<input type="checkbox"/>	Does your background research enable you to make a prediction of what will occur in your experiment?
<input type="checkbox"/>	Will you have the knowledge to understand what causes the behavior you observe?
<input type="checkbox"/>	Does your research include the following:
<input type="checkbox"/>	a) Current accepted theories, facts, and data
<input type="checkbox"/>	b) Relevant mathematics/equations (if applicable)
<input type="checkbox"/>	c) Key discoveries and early researchers
<input type="checkbox"/>	Have you referenced all information copied from another source and put any phrases, sentences or paragraphs in quotation marks?
<input type="checkbox"/>	Is every fact or picture in your research paper followed by a citation telling the reader where you found the information?
<input type="checkbox"/>	Does your research paper include:
<input type="checkbox"/>	a) A title page
<input type="checkbox"/>	b) Your Report
<input type="checkbox"/>	c) Bibliography
<input type="checkbox"/>	Have you used the proper capitalization and punctuation?
<input type="checkbox"/>	Have you checked your grammar and spelling?

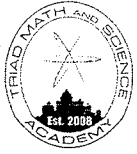


## STEP 2 - TMSA BIBLIOGRAPHY WORKSHEET

Student Name: \_\_\_\_\_

This source is a _____ Book _____ Magazine _____ Newspaper _____ Website _____ Other		
Author's Last Name		
First Name		
Middle Initial		
Date Published	Publication/Website Title:	
Title of Article		
Place Published	Publisher	Editor
Edition	Volume Number	Page Number (s)
Website is a Company _____ Organization _____ Government _____ Newspaper/Magazine _____ Other _____		
The url is http://		

This source is a _____ Book _____ Magazine _____ Newspaper _____ Website _____ Other		
Author's Last Name		
First Name		
Middle Initial		
Date Published	Publication/Website Title:	
Title of Article		
Place Published	Publisher	Editor
Edition	Volume Number	Page Number (s)
Website is a Company _____ Organization _____ Government _____ Newspaper/Magazine _____ Other _____		
The url is http://		



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	Publication/Website Title:	
Title of Article		
Place Published	Publisher	Editor
Edition	Volume Number	Page Number (s)
Website is a <input type="checkbox"/> Company <input type="checkbox"/> Organization <input type="checkbox"/> Government		
Newspaper/Magazine <input type="checkbox"/> Other <input type="checkbox"/>		
The url is http://		

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	Publication/Website Title:	
Title of Article		
Place Published	Publisher	Editor
Edition	Volume Number	Page Number (s)
Website is a <input type="checkbox"/> Company <input type="checkbox"/> Organization <input type="checkbox"/> Government		
Newspaper/Magazine <input type="checkbox"/> Other <input type="checkbox"/>		
The url is http://		



## STEP 3 - HYPOTHESIS & VARIABLES

NAME: \_\_\_\_\_ GRADE LEVEL: \_\_\_\_\_

<b>WHAT ARE YOUR VARIABLES?</b> ( Write the variables from your experiments)		
<b>Independent variables</b> (What do you change in your experiment?)	<b>Dependent variables</b> (What do you measure or observe in your experiment?)	<b>Controlled variables</b> (What should you keep the same during the experiment?)
<b>WHAT IS YOUR HYPOTHESIS?</b>		
<b>If (I do this)</b>		
_____		
_____		
<b>then (this)</b>		
_____		
_____		
_____		
_____		
_____		
_____		
<b>will happen.</b>		
If the <b>independent variable</b> is (increased, decreased, changed), then the <b>dependent variable</b> will (increase, decrease, change).		







## STEP 4 - EXPERIMENTAL DESIGN PLAN

1) Question or Problem	What is your question or problem?
2) Hypothesis	Write your hypothesis
3) Material List	Please list the materials that you used for your project.
4) Procedures	Write down the procedures that you followed to conduct your experiment.





## STEP 5 - DATA ANALYSIS

### DATA ANALYSIS

A summary of the findings of the experiments

### GRAPHS, TABLE OR CHART

### CONCLUSION

An explanation of the results of the experiment.





## STEP-6 ABSTRACT PAPER PLAN

Research abstracts are used throughout the research community to provide a concise description about a research project. It is typically a short summary of your completed research. If done well, it makes the reader want to learn more about your research. Some students present their research findings at local and national science fairs. Research abstracts are usually requested as part of the application process for science fair presenters. These are the basic components of an abstract in any discipline:

These are the basic components of an abstract in any discipline:

1) Motivation/problem statement:

Why do we care about the problem? What practical, scientific, theoretical or artistic gap is your research filling?

2) Methods/procedure/approach:

What did you actually do to get your results? (e.g. analyzed 3 novels, completed a series of 5 oil paintings, interviewed 17 students)

3) Results/findings/product:

As a result of completing the above procedure, what did you learn/invent/create?

4) Conclusion/implications:

What are the larger implications of your findings, especially for the problem/gap identified in step 1?



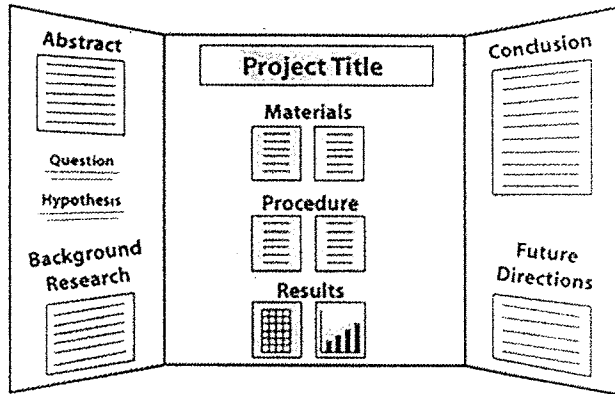
## STEP 6 FINAL REPORT CHECKLISTS

Student 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?
<input type="checkbox"/>	Does your final report include the following key sections:
<input type="checkbox"/>	a. Title Page
<input type="checkbox"/>	b. Abstract
<input type="checkbox"/>	c. Table of Contents
<input type="checkbox"/>	d. Question, variables, and hypothesis
<input type="checkbox"/>	e. Background research (your research paper)
<input type="checkbox"/>	f. Materials list
<input type="checkbox"/>	g. Experimental procedure
<input type="checkbox"/>	h. Data analysis and discussion (including data tables and graphs)
<input type="checkbox"/>	i. Conclusions
<input type="checkbox"/>	j. Acknowledgements
<input type="checkbox"/>	k. Bibliography



## STEP 7 - TMSA STEM FAIR DISPLAY BOARD PLAN



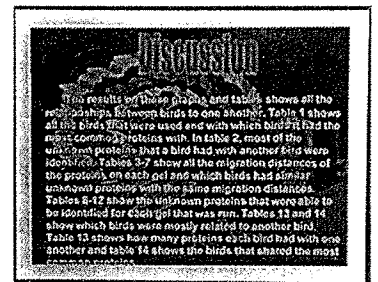
For almost every science fair project, you need to prepare a **display board** to communicate your work to others. In most cases you will use a standard, three-panel display board that unfolds to be 36" tall by 48" wide

- **Organize your information like a newspaper** so that your audience can quickly follow the thread of your experiment by reading from top to bottom, then left to right. Include each step of your science fair project: Abstract, question, hypothesis, variables, background

research, and so on.

- Use a **font size of at least 16 points** for the text on your display board, so that it is easy to read from a few feet away. It's OK to use slightly smaller fonts for captions on picture and tables
- **The title should be big and easily read from across the room.** Choose one that accurately describes your work, but also grabs peoples' attention.
- **A picture speaks a thousand words!** Use photos or draw diagrams to present non-numerical data, to propose models that explain your results, or just to show your experimental setup. But, don't put text on top of photographs or images. It can be very difficult to read.

This sample shows how difficult it can be to read text when you print it on top of an image. Don't do it!



- **Check the rules for your science fair.** Here is a list of items that some science fairs allow (or even require) and some science fairs don't require (or even prohibit):

- Your name on the display board
- Captions that include the source for every picture or image
- Acknowledgements of people who helped you
- Your laboratory notebook (some science fairs want you to have it only during judging)
- Equipment such as your laboratory apparatus or your invention



## NCSEF Display Regulations

### General Requirements

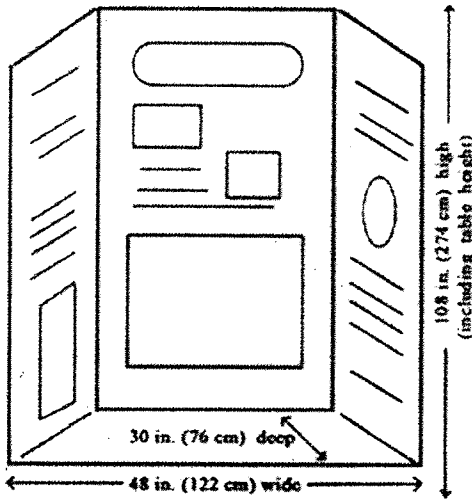
The Intel ISEF Display and Safety Committee is the final authority on display and safety issues for projects approved by the SRC to compete in the Intel ISEF. Occasionally, the Intel ISEF Display and Safety Committee may require students to make revisions in their display to conform to display and safety regulations.

### Maximum Size of Project

**Depth** (front to back): 30 inches or 76 centimeters

**Width** (side to side): 48 inches or 122 centimeters

**Height** (floor to top): 108 inches or 274 centimeters



At the NCSEF, fair-provided tables will not exceed a height of 36 inches (91 centimeters).

Maximum project sizes include all project materials, supports, and demonstrations for public and judges. If a table is used, it becomes part of the project and must not itself exceed the allowed dimensions nor may the table plus any part of the project exceed the allowed dimensions.

At the NCSEF, any project with a component that will be demonstrated by the Finalist must be demonstrated only within the confines of the Finalist's area. When not being demonstrated, the component plus the project must not exceed allowed dimensions.

### Position of Project

Table or freestanding display must be parallel to, and positioned at, the back of the table.

### Required to Be Visible and Vertically Displayed at the NCSEF

- Original of official Abstract and Certification as approved and stamped/embossed by the NCSEF Scientific Review Committee (Found in your registration packet on site at the State Level Fair) - (At regional fairs, Students will post their abstract without any certification), Abstract can be posted on the board or at the table.
- Completed NCSEF Project Set-up Approval Form (Received on-site at the Fair)
- Regulated Research Institutional/Industrial Setting Form (1C) — when applicable
- Continuation Projects Form (7) — when applicable
- Photograph / image credits

### Required to Be at the Project But Not Displayed at the NCSEF

All forms required for Scientific Review Committee approval including, but not limited to the **Checklist for Adult Sponsor (1)**, **Student Checklist (1A)**, **Research Plan, Approval Form (1B)**, and **Human Subjects (4)**, do





not have to be displayed as part of the project but must be available in the booth in case asked for by a judge or other NCSEF officials. In addition, the Display & Safety Committee requires a photograph/video release form signed by the human subject for visual images of humans (other than the Finalist) displayed as part of the project. These forms and any informed consents forms should not be displayed.

### **Handouts/Official Abstract and Certification at the NCSEF**

The NCSEF Scientific Review Committee defines the “official abstract and certification” as an **UNALTERED** original abstract and certification as stamped/embossed by the NCSEF Scientific Review Committee. If the Scientific Review Committee requires a Finalist to make changes to the abstract and certification submitted with registration papers, the revised version will be stamped/embossed, will replace the earlier version, and will become the Finalist’s official abstract and certification.

The only abstract allowed anywhere at a project is the official abstract. The term “abstract” may not be used as a title or reference for any information on a Finalist’s display or in a Finalist’s materials at the project except as part of displaying the official abstract.

An original stamped/embossed official abstract and certification must appear on the display board OR in a vertical position at the project. Handouts to judges and to the public must be limited to **UNALTERED photocopies** of the official abstract and certification. Local and Regional Fairs may not stamp the abstract. At the State level, students will receive a stamped copy of their abstract in their registration packet.

### **Not Allowed at Project or in Booth**

1. Living organisms, including plants
2. No soil, sand, rock, and/or waste samples **EVEN IF permanently encased in a slab of acrylic**
3. Taxidermy specimens or parts
4. Preserved vertebrate or invertebrate animals
5. Human or animal food
6. Human/animal parts or body fluids (for example, blood, urine)
7. Plant materials (living, dead, or preserved) that are in their raw, unprocessed, or non-manufactured state (Exception: manufactured construction materials used in building the project or display)
8. All chemicals including water
9. All hazardous substances or devices [for example, poisons, drugs, firearms, weapons, ammunition, reloading devices, and lasers (as indicated in item 5 in the section of these rules entitled “Allowed at Project or in Booth BUT with the Restrictions Indicated”)]
10. Dry ice or other sublimating solids
11. Sharp items (for example, syringes, needles, pipettes, knives)
12. Flames or highly flammable materials
13. Batteries with open-top cells
14. Awards, medals, business cards, flags, logos, endorsements, and/or acknowledgments (graphic or written) unless the item(s) are an integral part of the project (Exception: NCSEF medal(s) may be worn at all times.)



15. Photographs or other visual presentations depicting vertebrate animals in surgical techniques, dissections, necropsies, or other lab procedures
16. Active Internet or e-mail connections as part of displaying or operating the project at the NCSEF
17. Prior years' written material or visual depictions on the vertical display board. [Exception: the project title displayed in the Finalist's booth may mention years or which year the project is (for example, "Year Two of an Ongoing Study")]. Continuation projects must have the Continuation Project Form (7) vertically displayed.
18. Glass or glass objects unless deemed by the Display and Safety Committee to be an integral and necessary part of the project (Exception: glass that is an integral part of a commercial product such as a computer screen)
19. Any apparatus deemed unsafe by the Scientific Review Committee, the Display and Safety Committee, or Society for Science & the Public (for example, large vacuum tubes or dangerous ray-generating devices, empty tanks that previously contained combustible liquids or gases, pressurized tanks, etc.)

#### **Allowed at Project BUT with the Restrictions Indicated**

1. Postal addresses, World Wide Web and e-mail addresses, telephone and fax numbers **of Finalist only**
2. Photographs and/or visual depictions if:
  - a) They are not deemed offensive or inappropriate by the Scientific Review Committee, the Display and Safety Committee, or Society for Science & the Public. This includes, but is not limited to, visually offensive photographs or visual depictions of invertebrate or vertebrate animals, including humans. The decision by any one of the groups mentioned above is final.
  - b) They have credit lines of origin ("Photograph taken by..." or "Image taken from..."). (If all photographs being displayed were taken by the Finalist or are from the same source, one credit line prominently and vertically displayed is sufficient.) They are from the Internet, magazines, newspapers, journals, etc., and credit lines are attached. (If all photographs/images are from the same source, one credit prominently and vertically displayed is sufficient.)
  - c) They are photographs or visual depictions of the Finalist.
  - d) They are photographs of human subjects for which signed consent forms are at the project or in the booth.
3. Any apparatus with unshielded belts, pulleys, chains, or moving parts with tension or pinch points **if for display only and not operated.**
4. Any demonstration for judges or the public must be performed within the maximum size of the project permitted, an area 30" (Depth) by 48" (Width) by 108" (Height)
5. Class II lasers if:
  - a) The output energy is <math>< 1\text{ mW}</math> and is operated only by the Finalist
  - b) Operated only during the Display and Safety inspection and during judging
  - c) Labeled with a sign reading "**Laser Radiation: Do Not Look into Beam**"