

SEFMD Virtual 2020-2021

Project Material Guidelines

SEFMD has established the following guidelines, in consultation with the Society for Science & the Public and the Judging Advisory Committee as well as with the SRC and D&S Committees to establish the project materials that will be used during judging. These guidelines have been established to address a judging process that will occur remotely and through a digital medium

REQUIRED Items:

I. ISEF Paperwork as necessary

- a. All Senior Division Projects must complete and submit the following forms
 - 1. Form 1, Form 1A, Form 1B
 - b. In addition, if applicable
 - Form 1C (Regulated Research Institutional Setting Form)
 - Form 7 (Continuation Form)
- plus
- all other forms if necessary

II. Project Presentation – MAXIMUM of 12 pages

- a. The project presentation replaces the project poster used during in-person fairs. Appendix II provides complete instructions of the format requirements and recommendations.
- b. There are three suggested templates based on project type:
 - i. Science Projects,
 - ii. Engineering Projects and
 - iii. Mathematics/Computer Science Projects.
- c. Project presentations will be required to be submitted by a set deadline and will then be locked for Display & Safety inspection prior to competition.

III. Project Video (5-minute maximum)

- a. This video summarizes the project. Since most of the projects will not have a 'virtual interview', this project video will take the place of the interview. This is required for all projects.

Additional OPTIONAL materials:

All judges will have access to these optional materials, just as they would at a finalists' booth, but there is no guarantee that the judges will review them.

1. Video Demonstration/Simulation/Animation (1 minute maximum)

If a project is best explained by showing a demonstration, simulation or animation, you may include the demonstration/simulation/Animation. This component should be part of the 5:00 video presentation.

2. Research Paper

SEFMD does not require any project to include a research paper. However, many students have completed such a paper through the research process and would include it at their booth during an in-person fair. If you have prepared such a paper, you may upload it to share with judges, though judges are not required to review it.

3. Lab Notebook Image/Excerpt

SEFMD does not require any project to submit a laboratory notebook. However, many finalists have this record of their research timeline and process and typically have it available at their booth. A student may upload a PDF of up to 4 pages of a lab notebook to provide evidence of its use, but it is strongly advised NOT to share the notebook in totality to protect your intellectual property.

4. Optional Photos/notes

Up to four additional photos may be uploaded that are critical to the project. This photos may show a particular item in detail, an overview of the project, or whatever the student feels is necessary for the judges to fairly evaluate the project.

5. Optional Quad Chart (for Senior Division only)

- The quad chart summarizes the project in a single page for a quick overview by the judges.
- Appendix III provides complete instructions with format requirements and recommendations as well as sample templates.
- The Quad Chart will be required for projects that compete at the International Science and Engineering Fair

Appendix I. Submission and Review Process

ISEF Paperwork (required for all Senior Division Projects)

All finalists must submit a finalist questionnaire that includes all of the ISEF paperwork required for their project. Minimally, all projects must have [Checklist Forms 1](#), [Student Checklist Form 1A](#), Project Plan/Summary and [Approval Form 1B](#). The forms that are to be made available at your project booth for the judges to review are 1) the [Official Abstract](#) and if applicable, the [Regulated Research Setting Form 1C](#) and/or the [Continuation Form 7](#).

- **Abstract** (250-word format)
The abstract summarizes the information contained in the rest of this document. An abstract includes: (a) the research question or engineering problem, (b) procedures used, (c) data, (d) interpretation and (d) conclusions. It also may include any possible research applications. It should be limited to these essential elements. There is not a separate form for the abstract – it is part of the normal entry form process
- **Regulated Research Institutional Setting Form 1C** (if applicable)
In 2020-2021, when many Regulated Research Institution laboratories and facilities are closed to student researchers, the ISEF SRC has suggested that a Form 1C be used when support from mentors and those in a laboratory setting has been provided, even when the student received this support remotely. This can also include situations in which a high school teacher is supporting laboratory activities on behalf of a remote student to help clarify the student's involvement in each step of the project.
- **Continuation Form 7** (if applicable)
Any project that is a continuation of a previous year's work must document that additional research is new and different on Continuation Form 7. Note that projects that were conducted between January 2020 and March 2020 that competed at an ISEF-affiliate fair, may not be presented in 2021 without meeting the continuation criteria.

Display & Safety

Display & Safety inspections will include a review of all submitted materials and enforcement of the display guidelines as published in the International Rules and Guidelines. This includes providing appropriate credits for photographs, graphs and other visuals and in having any permissions of individuals depicted in any project materials (on the board, slides or in the video) available.

Calendar of Processes

The final timing of the SEFMD judging process is as shown in the calendar of events and summarized below

- Deadline for original submission of project: February 5, 2021
- Final deadline for submission of revised abstract and additional 'display' paperwork: March 1, 2021
- Final deadline for any revised 'display' paperwork deemed unacceptable by the Display and Safety Committee (occurs between March 1 and March 4) – within 24 hours of notification
- Preliminary judging (without interviews): March 5 – March 8
- Selection of top 50 Senior Division Students to advance to the Grand Award step – March 8
- Virtual interviews conducted with top 50 Senior Division Students – March 10 (9 AM to noon)

Appendix II. Project Presentation Instructions

You may prepare your Project Presentation for Virtual SEFMD using any software tools that you desire, but the final document submitted for display to the judges and the public must satisfy the following requirements.

Format Requirements

1. The Project Presentation must be a single PDF document limited to no more than 12 pages.
2. You must use a page size no larger than standard 8½"X11"
3. The PDF document must open with default magnification "Fit Page" so that **the entire page is visible at the same time**. Recognizing that almost all judges will view your Project Presentation on screens that are wider than they are tall, you should create all pages in Landscape mode.
4. Your PDF document must not have instructions to open in "full screen mode." Eliminating this mode automatically precludes page transitions and embedded videos or animations, so do not attempt to include these in your Presentation. (There is provision elsewhere in your submission for an optional video if you need something to move in order to illustrate your project.)
5. The page background color must be white.
6. Text color must be predominantly black, but limited color for emphasis is acceptable.
7. All text should be readable easily when viewing the entire page at once. The smallest allowable font size of body text is 14 pt. *Exception:* You may use a smaller font size, down to 10 pt., for figure captions or photo credits.
8. All Project Presentation elements must conform to D&S rules as if placed on a physical poster for display to judges and the public. Passing a Display & Safety inspection will be required to compete.

Format Recommendations:

1. Do not use non-standard fonts or colors to "stand out from the crowd" or to be entertaining. It is recommended that you use a font such as Arial, Calibri, Helvetica or Century Gothic.
2. Page titles should all be the same size. That size should be larger than headings within each page. In turn, headings should be larger than body text. For readability, we recommend body text be no smaller than 18 pt.
3. Avoid long expository paragraphs. State your points succinctly.
4. Use bullets to set out individual points of interest. Use numbered lists when the ordering of points of interest is important (*e.g.*, instructions to be followed in order, or items needing a reference anchor for citation elsewhere in your Presentation).
5. All body text should adopt a common font style and size. Similarly, all heading text should adopt a common font style and size. There is no recommendation for the style and size relation between body and heading text.

Project Presentation Templates

Choose one of the following templates to create your presentation. Do not include information not specified in this template. If you are submitting a continuation project, include only information related to this year's research unless otherwise directed in the instructions below. You may include graphical elements as they would explain or illustrate your work and can be contained within the overall page limits.

Each of the seven (7) required sections in each template must start on its own page. Each section may use as many pages as you want, as long as all formatting instructions above (such as total project presentation page count) are satisfied.

TEMPLATE I: Science Projects

TEMPLATE II: Engineering Projects

TEMPLATE III: Mathematics/Computer Science Projects (*being developed*)

Project Presentation Template: Science Project – max of 12 pages

1. Project ID and Title (start on a new page)

- The following should be included:
 - Project ID. This ID will be provided by SEFMD and emailed to the student and teacher by February 8.
 - Project Title
 - Do NOT include: Finalist Name (s), School, Location of work performed (eg, Oakland University, U of M)

2. What is your research question? (start on a new page)

- Explain what is known or has already been done in your research area. Include a brief review of relevant literature. If this is a continuation project, a brief summary of your prior research is appropriate here. Be sure to distinguish your previous work from this year's project.
- What were you trying to find out? Include a description of your purpose, your research question, and/or your hypothesis.

3. Explain your methodology and procedures for carrying out your project in detail. (start on a new page)

- What did you do? What data did you collect and how did you collect that data? Discuss your control group and the variables you tested.
- DO NOT include a list of materials.

4. What were the result(s) of your project? (start on a new page)

- Include tables and figures which illustrate your data.
- Include relevant statistical analysis of the data.

5. What is your interpretation of these results? (start on a new page)

- What do these results mean? Compare your results with theories, published data, commonly held beliefs, and expected results.
- Discuss possible errors. Did any questions or problems arise that you were not expecting? How did the data vary between repeated observations of similar events? How were results affected by uncontrolled events?

6. What conclusions did you reach? (start on a new page)

- What do these results mean in the context of the literature review and other work being done in your research area? How do the results address your research question? Do your results support your hypothesis?
- What application(s) do you see for your work?

7. References (start on a new page)

- This section should not exceed one page. Limit your list to the most important references.
- List the references/documentation used which were not of your own creation (i.e., books, journal articles).

Project Presentation Template: Engineering Project–max of 12 pages

1. Project ID and Title (start on a new page)

- The following should be included:
 - Project ID. This ID will be provided by SEFMD and emailed to the student and teacher by February 8.
 - Project Title
 - Do NOT include: Finalist Name (s), School, Location of work performed (eg, Oakland University, U of M)

2. What is your engineering problem and goal? (start on a new page)

- What problem were you trying to solve? Include a description of your engineering goal.
- Explain what is known or has already been done to solve this problem, including work on which you may build. You may include a brief review of relevant literature.
- If this is a continuation project, a brief summary of your prior work is appropriate here. Be sure to distinguish your previous work from this year's project.

3. Explain your methods and procedures for building your design. (start on a new page)

- What did you do? How did you design and produce your prototype? If there is a physical prototype, you may want to include pictures or designs of the prototype.
- If you tested the prototype, what were your testing procedures? What data did you collect and how did you collect that data?
- DO NOT include a separate list of materials.

4. What were the result(s) of your project? (start on a new page)

- How did your prototype meet your engineering goal?
- If you tested the prototype, provide a summary of testing data tables and figures that illustrate your results.
- Include relevant statistical analysis of the data.

5. What is your interpretation of these results? (start on a new page)

- What do these results mean? You may compare your results with theories, published data, commonly held beliefs, and/or expected results.
- Did any questions or problems arise that you were not expecting? Were these problems caused by uncontrolled events? How did you address these?
- How is your prototype an improvement or advancement over what is currently available?

6. What conclusions did you reach? (start on a new page)

- Did your project turn out as you expected?
- What application(s) do you see for your work?


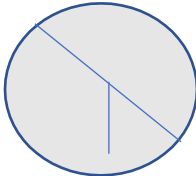
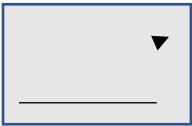
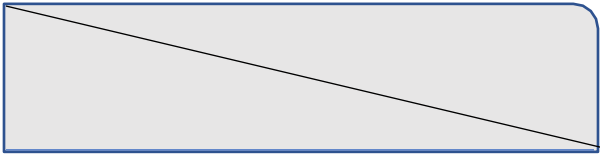
7. References (start on a new page)

- This section should not exceed one page. Limit your list to the most important references.
- List the references/documentation used which were not of your own creation (i.e., books, journal articles).

Appendix III. Quad Chart Instructions

A “quad chart” is a single page divided into four quadrants providing a high-level summary of the project. It is intended to be more visual than detailed in order to quickly introduce your judges to what is important about your project. Follow the model below that corresponds to the Project Presentation template you selected.

1. You must use a page size no larger than standard 8½”X11”
2. The page background color must be white.
3. Text color must be predominantly black, but limited color for emphasis is acceptable.
4. The minimum allowable font size is 14 pt. *Exception:* You may use a smaller font size, down to 10 pt., for figure captions or photo credits.
5. All four quadrants of your Quad Chart should each be the same size with a single border line delimiting each, as in the examples below. The Title section should be only as tall as necessary to include your project title and other identifying information (see section on Quad Chart Title).
6. The Quad Chart should not include a bibliography, references, or acknowledgments.

Science Project Quad Chart	
<p>Q1: Research Question</p> <ul style="list-style-type: none"> • • • • 	<p>Q3: Data Analysis & Results</p>  
<p>Q2: Methodology</p> <ul style="list-style-type: none"> • • • • • • 	<p>Q4: Interpretation & Conclusions</p> <ul style="list-style-type: none"> • • • 

Engineering Project Quad Chart	
Q1: Engineering Problem & Project Objectives	Q3: Data Analysis & Results
Q2: Project Design	Q4: Interpretation & Conclusions

Quad Chart Title:

- In the upper right-hand corner, list the Project ID
- Line one is the title of your project
- Student Name, School Name, etc is NOT to appear on the Quad Chart

Quadrant 1: Research Question/Engineering Goal

- This should reflect material in #2 of the Project Presentation Template.
- Please state the research question or engineering problem being addressed
- A leading core graphic or visual is encouraged, but not required.

Quadrant 2: Methodology/Project Design

- This should reflect material in #3 of the Project Presentation Template.
- Please provide a succinct, bulleted summary of the methodology/project design

Quadrant 3: Data Analysis & Results

- This should reflect material in #4 and 5 of the Project Presentation Template.
- It is advised that this quadrant should primarily be a graphic representation of relevant data and results.
- Text should be kept to a minimum.

Quadrant 4: Interpretation & Conclusions

- This should reflect material in #5 and # 6 of the Project Presentation Template.

Appendix IV. Project Video Instructions

Record a video (maximum duration 5 minutes) explaining your project. The target audience for this video will be for the judges. While judges will have access to this video, it will not be the focus of their project review – they will concentrate on the other materials.

What to include in your video:

1. Introduce Yourself: State your full name and your project in a single sentence (do not just recite your project title)

2. Explain Your Project: Summarize your research into main points:

- a. What did you do?
- b. What did you find?
- c. What conclusions did you draw?

To note:

- You can use any props or visuals you may have that are within the Display & Safety guidelines.
- Do not include anyone in your video other than the student researchers of the project.

Best Practices for Filming:

These videos will not be edited. To ensure your video is the best representation of your work, please keep these best practices in mind while filming:

- Please speak in English.
- Film yourself in a well-lit and non-distracting environment so the viewer's focus stays on you and your work.
- For best results, film your video horizontally (landscape).
- Keep the camera still and in place during filming.
- Speak clearly and loudly enough that the recording is able to pick up every word you say.
- Avoid long pauses.
- Listen to your video after recording to ensure your voice is clear and audible, and that the video has not picked up too much background noise.

Uploading of Video:

The video must be uploaded to YouTube or Google Drive and a 'hyperlink' must be used to enter online. Refer to the training video on how to upload a video