

62nd Shenandoah Valley Regional Science & Engineering Fair
Rules and Guidelines: Senior Division
March 20 and 21, 2021

Welcome to the 61st edition of the Shenandoah Valley Regional Science and Engineering Fair. Due to the COVID pandemic, this year will see some changes:

- The Fair will be held remotely.
- Live Judging interviews will be conducted over ZOOM.
- The Fair will be held over the weekend of March 20 and 21 (Regular judging 12pm through APPROXIMATELY 4pm on Saturday, Grand Prize 12pm through APPROXIMATELY 4pm judging on Sunday).
- Judging will be based on both judge evaluation of written/digital materials *before* the Fair *Project Presentation*) and a live interview *during* the Fair on Saturday and, for Grand Prize Judging, again on Sunday.
- Deadline for submission of Registration, which includes the *Project Presentation*, is March 1st.
- There will be no cost associated with Registration and Participation this year.
- Winners will as usual qualify for the State Fair and ISEF; the number is to be determined.
- Composite Judging groups will be created for probably all participants.
- It is important that we can contact students directly through email. As part of registration, participants will be asked for a parent/guardian email. We will email the parent and ask for both permission-to-contact and a non-school email to contact the student. Alternatively, parents/guardian can, if necessary, request contact only through parent/guardian email.

Contacts. Please contact the following if you have any questions:

Corey Cleland, JMU, Fair Director (clelandc1@jmu.edu) – questions beyond judging, registration, Forms
Kristopher Kubow, JMU, Judging (kubowke@jmu.edu) – judging questions
Kelley Aitkin, Supervisor, Science & Art, Frederick County (aitkenk@fcpsk12.net) – Project Registration questions
Kara Bates, MRGS, Chair, Scientific Review Committee (krbates@shenandoah.k12.va.us) – questions on required Forms

Deadline

- **March 1, 2020** Online Registration, Support Forms & Project Presentation
- **Fair Website and Registration Link:** <http://svrsef.org>

Location

The annual Shenandoah Valley Regional Science & Engineering Fair (SVRSEF) is scheduled for Saturday and Sunday, March 20th and 21st, 2021) and will be held remotely over ZOOM. There is no snow date.

Eligibility

To be eligible to present a research project in the SENIOR division, a student must reside in the Shenandoah Valley Fair Region (roughly between Clarke Co to the north and Rockbridge Co to the south), be enrolled in one of the grades 9-12 in any public, private, parochial, Christian school or in an equivalent documented program of home schooling, and not be over the age of 21.

Students must be vetted through a school or local Fair or process to participate the SVRSEF regional fair. Please contact the Director if you have any questions.

Students may only present research that was conducted since March, 2018. However, student(s) may present research on a continuing project if the presented work is based on new research within the past year. A student may enter/contribute to only one research project. The project must be the student(s)' own work. Only 1, 2 or 3 students can contribute to a project.

Projects involving: weapons and their components (including paintball and potato guns), sleep deprivation or drinking of alcohol by human or animal subjects are not allowed.

Submission Process – Project information

Registration, Forms, abstract and Research Summary must be submitted electronically by March 1st, 2021 via the **SVRSEF.org** website. The information, required includes:

- | | |
|----------------------------------|---|
| 1) All 1-3 student names | 5) abstract |
| 2) Parent email | 6) teacher/sponsor, |
| 3) School | 7) teacher/sponsor email, phone |
| 4) preferred Scientific category | 8) Required Forms in a single PDF (see below) |

The direct registration link if needed is also below.

https://docs.google.com/forms/d/11G7D2E7F0dmk998_b3D-4nZulo2R8QdtQZHZBeEK11Y/viewform?ts=5e273630&edit_requested=true

Projects must be classified into one of the following 14 Scientific Categories (note these differ somewhat from ISEF):

- | | |
|-------------------------------------|------------------------------|
| 1) Animal Science | 8) Engineering |
| 2) Behavioral and Social Science | 9) Energy and Transportation |
| 3) Biochemistry | 10) Environmental Science |
| 4) Cellular and Molecular Biology | 11) Medicine and Health |
| 5) Chemistry | 12) Microbiology |
| 6) Computer Science and mathematics | 13) Physics and Astronomy |
| 7) Earth and Planetary Science | 14) Plant Science |

Note that at the Fair small categories may (and WILL BE THIS YEAR) be combined. Consequently, it is possible that some scientific categories may not have winners or there may be more than one winner in a category. For students that progress to the State Fair or ISEF, they can change their categories.

Please consult **Kelley Aitken** (aitkenk@fcpsk12.net) with any questions about electronic submission.

Submission Process – Required Forms

The *Project Presentation* (described later) is required and the following TWELVE Forms MAY need to be submitted for each project; several MUST be submitted. Forms and their descriptions can be found at:

<https://www.societyforscience.org/isef/forms/>

Forms that should be completed and signed *before* research begins. Depending on the research, some forms may not be required; see description at the top of each form. “Always required” forms indicated.

Form 1: Checklist for Adult Sponsor / Safety Assessment Form [always required]
Form 1A: Student Checklist / Research Plan [always required]
Form 1B: Approval Form (only Form requiring Parent/Guardian signature) [always required]
Form 2: Qualified Scientist Form
Form 3: Risk Assessment Form [always required]
Form 4: Human Participants and Informed Consent Form
Form 5A: Vertebrate Animal Form
Form 6A: Potentially Hazardous Biological Agents Form
Form 6B: Human and Vertebrate Animal Tissue Form

Forms that can be completed and signed *after* research is completed but before the Fair. Depending on the research, some or all of these three forms *may* not be required; see description at the top of each form.

Form 1C: Regulated Research Institutional / Industrial Setting Form
Form 5B: Vertebrate Animal Form (5A and 5B)
Form 7: Continuation Projects Form

Forms must be submitted with Registration by March 1st. Forms should be submitted through the Registration URL (in which case the Forms should be scanned/combined to a single PDF). If absolutely necessary, Forms can be submitted by snail mail to **Corey Cleland** (address at end of Rules); please allow time for receipt by March 1st. Please consult **Kara Bates** with any questions.

Kara Bates, MRGS, Chair, Scientific Review Committee
krbates@shenandoah.k12.va.us

Cost

There will be no registration or participation cost this year.

Fair Schedule (*new this year!!*)

Before the Fair

At specified times (tba), Participants will be expected to connect to Fair staff through ZOOM to verify that it will work during the Fair. Students will receive a schedule of their interview time on Saturday.

Saturday – Scientific Category Judging

We are currently firming up times but, anticipate live remote Category judging approximately noon though 5pm over ZOOM. Participants will arrive at ZOOM site 10 minutes before their scheduled interview. At their interview, they will be placed in a ZOOM break-out room with 2-4 judges. The interview will last 20 minutes (10 minutes for a brief presentation, 10 minutes for questions). There will only be a single interview. Participants are free to leave afterwards.

Sunday – Grand Prize Judging

We are currently firming up times, but anticipate live remote Grand Prize judging approximately noon though 5pm over ZOOM. Participants will arrive at the ZOOM site 10 minutes before their scheduled interview. At their interview, they will be placed in a ZOOM break-out room with 2-4

judges. The interview will last 20-30 minutes (10 minutes for a brief presentation, 10-20 minutes for questions). There will only be a single interview. Participants are free to leave afterwards.

Special Awards Judging

The judging process regarding Special Awards still being planned. You will be notified soon.

Awards Ceremony

Awards Ceremony is still be planned. You will be notified soon. Winners will qualify for the State Fair and ISEF, although given the Fair is expected to be small the number is to be determined.

Awards – Scientific

First, second and third Places will be awarded in each *Judging group*. Judging groups typically correspond to scientific categories (see above), except small categories may be combined and large categories may be split into multiple judging groups. Consequently, it is possible that some scientific categories may not have winners or there may be more than one winner in a category. For students that progress to the State Fair or ISEF, they can change their categories. There will one First Place (gold) but potentially one or two 2nd and 3rd Place (silver, bronze) Awards. Teams will be judged equally to individual projects. Judging Group 1st Place winners will be eligible to compete at the Virginia State Science and Engineering Fair (Roanoke, April, 2020).

We expect to award one or two Grand Prizes. The winning students will be eligible to participate in ISEF, which will be virtual in 2020.

Awards – Special

Special and organizational awards will also be awarded. In some instances, the recipient will need to follow-up with organization by email or website to complete receipt of the award.

Disclaimer

Neither the Science Fair Committee, the cooperating groups and sponsors, nor James Madison University, assumes any responsibility for loss or damage of any personal property, exhibit or part thereof.

Research Summary Requirements

The following requirements and Guidelines closely adhere to State (VSSEF) and ISEF requirements and guidelines. They do differ however in that State/ISEF (but not SVRSEF) requires submission of a:

- 1) "Quad" Summary Chart (one page visual summary)
- 2) Video Presentations (since not all students are interviewed live as are doing)

If you attend either VSSEF or ISEF you will need to submit these documents.

Project Presentation Format *Requirements and Recommendations*

You may prepare your Project Presentation for Virtual VSSEF 2021 using any software tools (for example, Word, PowerPoint, Google) that you desire, but the final document submitted for display to the judges and the public must satisfy the following 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 either American standard 8½"X11" or European standard A4.
- 3) 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) The page background color must be white.
- 5) Text color must be predominantly black, but limited color for emphasis is acceptable.
- 6) 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.
- 7) 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.
- 8) You should 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.
- 9) 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.
- 10). Avoid long expository paragraphs. State your points succinctly, but provide enough information that the Judge can understand your research based on the document when they review it before the Fair.
- 11). Also, we *recommend* that a) the PDF document must open with default magnification "Fit Page" so that the entire page is visible at the same time. b) 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. These are State/ISEF requirements.

Project Presentation Templates

There are two suggested templates based on project type:

- Science Projects
- Engineering Projects

Choose one of the following two 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 page count) are satisfied.

TEMPLATE I: Science Projects

1. Project ID and Title

- The following should be included:
 - o Project Title
 - o Finalist Name (s)
 - o School(s)
 - o City, State

2. What is your research question?

- 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.

- 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?

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

5. What is your interpretation of these results?

- 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?

- 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

- 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

- Project ID and Title

The following should be included:

- o Project Title
- o Finalist Name (s)
- o School(s)
- o City, State, Province, Country

2. What is your engineering problem and goal?

- 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.

- 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?

- 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?

- 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?

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

7. References

- 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).

Live Interview with Judges over Zoom – Expectations and Tips

You will have a 20-25 minute interview with 2-4 for judges over ZOOM. The following are expectations and suggestions for your interview. During that time you can share your screen, which could be parts of your Project Presentation, or could be your research presented in another format.

- Dress appropriately, as you would have at the science fair. A nice top (polo or button up). Remember that, even though you may be alone at home, the judges and other presenters can SEE you!
- Be aware of your surroundings. Your judges and other presenters can also see BEHIND you. Try to clean up any clutter behind you and make sure your background is not distracting. Ideally, your background should be a plain wall. If you can't manage to find a clean, empty background, consider using a virtual Zoom background, if it works with you environment. There are tons of different styles out there, so make sure to pick one that looks realistic and professional.
- Make sure you're presenting in a well-lit room, where the source of light is in front of you. If the light source is directly behind you, you might end up looking like a dark blob.
- Practice putting your PDF of your project on the screen to make sure that you can easily see it and that is readable.
- Make sure that you know how to share your screen on zoom ahead of time. Check out this if you do not. <https://support.zoom.us/hc/en-us/articles/201362153-Sharing-your-screen-content-or-second-camera>. The week before you will be required to ZOOM with Fair staff to test you technology.
- Please keep background noise to a minimum so that you do not need to mute.

- Do not share the zoom link with others.
- Charge your device (for example, laptop computer, smartphone) while presenting to ensure that the battery does not die during the presentation.
- Adjust your camera level. Make sure your audience is looking at your face instead of the top of your head. Decide whether you want to sit or stand during your presentation, and adjust the webcam so it's at eye level. Try for your face occupying $\frac{1}{2}$ to $\frac{1}{3}$ of the screen.
- Speak Clearly and loudly
- If you are booted and can't get back in, call the Director : 434 284 0543

Further Information

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