Science Fair Events and Competition Sequence

Cumberland Valley’s Virtual Science Fair

An opportunity for ALL students to receive ribbons and feedback from a team of judges.

The scoring is done by CV science teachers using online PowerPoint presentation entries which document the key elements of research and investigations that were conducted; students do NOT present their work.

This fair is required for all students hoping to advance to PJAS and / or CASEF competitions with entries due by January 4th.

Cumberland Valley’s Science Fair Open House

A local event is held at Eagle View Middle school (January 25th) which allows students to display their work in the form of a tri-fold poster.

Ribbons are displayed on each student’s poster based upon Virtual Science fair results.

Pennsylvania Junior Academy of Science (PJAS)

A regional event is held on February 18th in which students take part in a 15 minute presentation and interview.

First place finishers qualify for State competition at PSU in May.

Students may earn scholarships for their work.

First paperwork is due on:

October 31st

Projects must be completed by:

January 4th

Capital Area Science and Engineering Fair (CASEF)

A regional event is held at the Whitaker Center March 22-25th in which students are judged on a tri-fold poster, scientific paper, laboratory notebook and interview performance.

Students may earn additional awards, scholarships or entry into advanced competitions.
Science Fair: Student Preparation Checklist

In order to participate in science fair competition, your research must be pre-approved with required paperwork submitted prior to beginning your investigation. This is to ensure you are conducting your research in a safe manner and that you have made your parents/guardians and teacher aware of your research plan. Keep in mind that if approval is not obtained by the date indicated, your work may not qualify for regional competitions.

I. Complete basic paperwork and find a willing adult sponsor: Please note that all forms should be typed into the electronic forms (hyperlinked below), saved and printed out for review and signatures where appropriate.

- Check your calendar with your parent/guardian. The PJAS Regional competition will be at Dauphin County Tech (Saturday, **February 18th**) and CASEF will be held at The Whitaker Center (Wednesday-Saturday, **March 22-25**).

- Purchase a laboratory notebook with sewn binding and begin to document ALL of your ideas, resources and work in **blue or black pen**. Do not worry about making mistakes, simply cross them out and move on in order to fully document all of your ideas, planning, discussions, experimentation, data analysis and conclusions.

- Place your name and project title on the Checklist for Adult Sponsor (1). If they are willing and able to sponsor you, the rest of this sheet will be completed by your sponsor after they review form 1A and your research plan (see below). Your adult sponsor should be a teacher at Cumberland Valley.

- Complete the Student Checklist (1A). List an estimated “start date” and “end date”; **IF** your project involves, bacteria, vertebrates or humans, write, “when approved”, in the start date section.

- Prepare a type-written, spell-checked research plan and attach it to Student Checklist (1A) above. This is **VERY** important because your sponsor will use this to help determine if you need additional paperwork, approval, supervision or a special facility for your research; be detailed and include the four sections below:
  
  A. Title
  B. Problem statement: Research question/problem you would like to address
  C. Hypothesis (one or more)
  D. Materials list
  E. A DETAILED, numbered, step by step procedure on how you propose to conduct your experiment.
  F. Anticipated data analysis method such as statistical techniques, graphs, etc.
  G. Bibliography - at least 5 **APA** references must be included

- Complete only part 1 of Approval Form (1B). This requires signatures and dates from you and your parents, and must be returned to you with approval before you begin your investigation.

II. If your sponsor agrees, complete the following under their guidance:

- Complete the Risk Assessment Form (3) **IF** your project will present even a minimal risk in the following areas: human participants of any kind, vertebrate animals, Potentially **hazardous biological agents**, hazardous chemicals or devices.

- Use the Form Wizard (with your sponsor if necessary) to determine whether or not additional forms or approval are required, and whether or not you need to use a special facility for your work – note that not all projects can be completed at home, or in a school classroom: it is your responsibility to find assistance.

- If you will need SRC approval, register at Stemwizard, record your login name / password, complete all required forms as described in Roman numeral I above, and submit everything via the mobile app. SRC approval must be made by **November 22nd** at 4 pm; this is the student’s responsibility, and **no exceptions will be made**.

- Complete the CV Approval cover sheet (page 2 of this document), and submit all of the required paperwork to your sponsor by **October 31st** for review; this paperwork should then be paper clipped beneath the CV Approval Cover sheet on the following page and passed along to Mr. Floreck for final approval.

  **Do NOT begin work until your paperwork is returned to you with all of the necessary approvals!**
CV Approval Cover Sheet  (Due Date: October 31st, 2016)

Paper clip this sheet atop your completed forms and ask your sponsor to turn them in to Mr. Floreck after initialing beside each of the inclusions below.

Name: __________________________________________________________________________

Email: __________________________________________________________________________

Sponsor: ___________________  Email: ___________________  

Required forms: These forms must be completed for ALL projects.

Sponsor initials

1: Adult Sponsor Checklist - Checklist and Sponsor Signature

1A: Student Checklist – Student and Project Details, plus the separate type-written Research plan with five source Bibliography.

1B: Approval form - Signatures of student and parent/guardian, as well as signatures of SRC or IRB if required.

Potential forms: Determined with your sponsor by using the Form Wizard.

SRC Review form - this form is only necessary if the IRB determines that your project is beyond minimal risk.

1C: Regulated Research / Institution setting - for projects not completed at home or school.

2: Qualified Scientist form - may be needed for projects that have human participants, vertebrate animals, potentially hazardous biological agents (including microbes) and DEA-controlled substances.

3: Risk Assessment form - required for projects that use hazardous chemicals (not found in a typical high school chemistry laboratory setting), hazardous activities or devices (i.e. weapons), and microorganism that are not exempt from pre-approval.

4: Human Participants form - ALL projects that use human participants. Human Informed Consent - required for each actively participating humans.

5A: Vertebrate Animal - ALL non-exempt vertebrate projects conducted at home/school/field site

5B: Vertebrate Animal - for vertebrate projects conducted in a Regulated Research Institution

6A: Potentially Hazardous Biological Agents Risk Assessment - needed for microorganisms, rDNA, fresh/frozen tissues (including primary cell lines, human and other primate established cell lines and tissue cultures, blood, blood products and body fluids.

6B: Human and Vertebrate Animal Tissue - for projects that use fresh/frozen tissues (including primary cell lines, human and other primate established cell lines and tissue cultures), blood, blood products and body fluids

7: Continuation/Research Progression - Required for projects that are a continuation/progression in the same field of study as a previous project for this student. NOTE: The previous year’s abstract and research plan must be included with the form.

Approval Status:  Approved  Rejected  Corrections needed  _________  _________
Science Fair: Investigation Checklist

III. Complete your project:

__ Make a dated and initialed entry in your journal in blue or black ink each time you do any of the following:
  - Conduct background research about your project, or required materials / methods
  - Meet with your sponsor to discuss your project
  - Design or conduct parts of your investigation
  - Record or analyze data
  - Generate new questions
  - Answer questions
  - Make conclusions

__ Plan a timeline for your investigation that accounts for the following:
  - Acquisition of required materials and equipment
  - Availability of facilities
  - Support from your sponsor or qualified scientist, if necessary
  - Accounts for potential incubation, growth, or other extended time intervals
  - Analysis of data requiring unknown statistical methods or analysis

__ Collect **METRIC** data throughout your experiment that is both qualitative (describes with words) and quantitative (describes with numbers); record these data in your journal and then present it in appropriate tables.

__ Present your data in a graphical form or figure that is appropriate to your project.

__ Analyze your data and determine whether or not it supports or refutes your hypothesis; plan how you will use your data to provide support for your conclusion.

__ Present your data and conclusions to your sponsor; refine your conclusions and presentation of data based upon their constructive criticism.

IV. Preparation for local judging and Open House

All students in grades 7-12 who hope to advance to PJAS and CASEF must enter their project for local judging; since we are only able to send our top 12 projects in each building to CASEF, entry and success here is required.

__ Email a PDF of your project presentation by **January 4th** to MFloreck@cvschools.org with an email subject line that reads as follows: Your name – Sponsor – grade (Example: Smith – Irvin - 6th). **PowerPoint presentations may not contain your name or other identifying marks and the file must be named as your six-digit student ID number** (Example: 113568.pdf); projects that do not meet these criteria will not be judged.

__ If you would like to present your work at the CV Local Science fair open house on **January 25th**, produce a poster according to the **CASEF guidelines**; this is good practice even if your project was not selected for regional competition.

__ Attend the **optional** Local Science Fair open house to see how your project scored and learn from the work of your peers.

__ Review the following pages if you hope to enter PJAS and / or CASEF competitions; note that all students may enter a project at PJAS, but only our top 12 finishers in the local fair from each building will be eligible for CASEF.
V. Preparation for PJAS:

- Complete the **cover sheet** for PJAS projects and paper-clamp it atop the forms you turned in for project approval.

- Review the **competition categories**, and determine where you will enter your project and write a formal title for your work; give some thought to this, as it will be your official one from this point forward.

- **ALL projects must have**
  
  1: *Adult Sponsor Checklist* - Checklist and Sponsor Signature  
  1A: *Student Checklist* – Student and Project Details  
  1B: *Approval form* - Signatures of student and parent/guardian, as well as signatures of SRC or IRB if required.

  *Research plan / Project summary*

  Additional required forms (as determined previously by the Form Wizard should be placed here in numerical order.

  **Abstract**

- Complete the Project Registration Cover sheet on the last page of this packet and ask your sponsor to submit it to Mr. Floreck along with the copies of the cover sheet and abstract; this bundle of forms must be turned in to PJAS by Mr. Floreck on **January 10th** – this is a hard deadline, with no extensions granted.

- Prepare your presentation according to the **presentation guidelines**.

- Review your project against the scoring **rules** and refine it if necessary.
  
  - **Science rubric**
  - **Mathematics rubric**
  - **Computer Science Rubric**

- Complete the **online registration** process for PJAS and upload your project.

- Rehearse your presentation and ensure that it stays within the **10 minute time** span allotted for you.

- Present your work at the CV help session on **Saturday, February 4th** to receive feedback and practice your interview skills; refine your presentation if necessary.

- Present your work at the PJAS competition held at **Dauphin County Tech** on Saturday, **February 18th**.

If your presentation is scored as a 1st Place project by the judges at the Region 4 PJAS competition, you will qualify for the State competition at Penn State University, which is held in the middle of May; details will be forwarded to you if you qualify and participation is voluntary.
VI. Preparation for **CASEF**: *Top 12 finishers in each building during the local fair ONLY*

Your sponsor will contact you in order to let you know if your project scored in our top 12, and will therefore be eligible for registration at CASEF.

Review the [competition categories](#), and determine where you will enter your project and write a formal title for your work; give some thought to this, as it will be your official one from this point forward.

Check over your preliminary paperwork, and complete the final forms:
- [Exhibitor Entry Form](#)
- [Student ID and Abstract Form](#)
- [ISEF attendance agreement](#): High School Division only!

Ensure that you have registered for CASEF at the [Stemwizard](#) website and uploaded all relevant forms using the mobile app. Please note that even if you advance in the top 12 from our local fair, there is no guarantee that CASEF will accept your project; it is the student’s responsibility to ensure that all paperwork is complete and submitted on time by the project registration deadline ([February 10th](#), by 4 pm). Record your Stemwizard student number in the space below and save all correspondences from CASEF and Stemwizard:

Login name: ___________________________ Password: ___________________________ Project number: ___________________________

All required forms must be uploaded to CASEF’S Stemwizard SITE via a mobile app as photographed documents; these must include ALL relevant signatures, dates and information. Please print and review these forms with your sponsor.

- [Project summary and Checklist](#)
- [1: Adult Sponsor Checklist](#) – Checklist and Sponsor Signature
- [1A: Student Checklist](#) – Student and Project Details
- [1B: Approval form](#) - Signatures of student and parent/guardian, as well as signatures of SRC or IRB if required.
- Research plan / Project summary
- Additional required forms (as determined previously by the Form Wizard should be placed here in numerical order.
- [Entry form](#)
- [Agreement to Attend ISEF](#) - High School Division only

Complete the Project Registration Cover sheet on the last page of this packet and ask your sponsor to submit it to Mr. Floreck along with the copies of the new forms; these will be kept along with the original forms for reference purposes, but all forms MUST have been uploaded to Stemwizard as described above.

Once CASEF completes their category selection process, you will be informed on whether your project has been accepted. If accepted, you will need to write a [formal scientific paper](#) and construct a poster according to the [CASEF guidelines](#).

Review the Scoring Rubric and make modifications to your project as necessary.

- [Traditional Rubric](#)
- [Engineering Rubric](#)

Set up and present your project at the Whitaker Center in Harrisburg during CASEF fair week ([March 22-25th](#)) according to the [published schedule](#).
Regional Fair: Project Registration Cover Sheet

Paper clip this sheet atop your completed forms and ask your sponsor to turn them in to Mr. Floreck after they have reviewed and initialed.

Name: ____________________________________________________________

Email: ____________________________________________________________

Sponsor: __________________________ Email: ____________________________

Required forms: Paperclip all forms to this cover sheet, and complete online entry by the required date(s): January 10th for PJAS February 10th for CASEF

Sponsor initials

_____ Required forms

- 1: Adult Sponsor Checklist - Checklist and Sponsor Signature
- 1A: Student Checklist – Student and Project Details
- 1B: Approval form - Signatures of student and parent/guardian, as well as signatures of SRC or IRB if required.
- Research plan / Project summary
- Additional required forms (those determined previously by the Form Wizard should be placed here in numerical order)

PJAS

_____ Registration – please note that the district is charged for all students who register, even if they do not attend the event; so, if you register and do not submit a project, please delete your registration at a later date.

_____ Presentation Upload – Upload your PowerPoint PDF for use during your oral presentation.

_____ Abstract (typewritten)

_____ Cover Sheet (typewritten) – requires several signatures.

CASEF

_____ Stemwizard login name: ____________ password: ____________ project number: ____________

_____ Entry form (typewritten) – requires Stemwizard student number and signatures (top right corner)

_____ Project summary and Checklist (typewritten)

_____ Agreement to Attend ISEF - High School Division only

_____ Laboratory journal (handwritten in blue / black ink in a sewn-binding notebook)