

STEMisphere.org/PRSEF Science Fair Registration System

Scientific Review Committee Member User Manual

Thank you for volunteering as a Scientific Review Committee Member for the Pittsburgh Regional Science and Engineering Fair (PRSEF). The Carnegie Science Center and all of the PRSEF students appreciate your support. We couldn't make this event happen without you!

Scientific Review Committee Member Role

Scientific Review Committee (SRC) members review student project proposals and required paperwork prior to the fair to ensure the safety of the students. Per the 2021 ISEF rulebook (<https://sspcdn.blob.core.windows.net/files/Documents/SEP/ISEF/2021/Rules/Book.pdf>)

“A Scientific Review Committee (SRC) examines projects for the following:

- Evidence of proper supervision
- Completed forms, signatures, research dates, and preapproval dates (when required)
- Evidence of proper team composition
- Compliance with rules and laws governing human and/or animal research and research involving potentially hazardous biological agents and/or hazardous chemicals, activities or devices
- Compliance with ISEF ethics statement
- Use of accepted and appropriate research techniques
- Evidence that risks have been properly assessed
- Evidence of search for alternatives to animal use
- Humane treatment of animals
- Documentation of substantial expansion for continuation projects
- Evidence of appropriate literature search and attribution”

All projects are reviewed online through the <https://www.STEMisphere.org/PRSEF> website where students register and complete their paperwork. SRC members give feedback on each form submitted and on a project level. A student may not compete at PRSEF until a member of the SRC has promoted their project to Accepted or Conditionally Accepted status.

This manual provides extensive training and guidance materials for SRC members. You are encouraged to familiarized yourself it before reviewing projects and to refer to it during the review process. You should also be familiar with the ISEF and PRSEF rulebooks which can be found at <https://www.STEMisphere.org/PRSEF>.

Registering to be an SRC member

All SRC members must be registered with the regional fair during the process of affiliation with Society for Science and the Public. The fair director is responsible for registering all SRC members. Those interested in joining the SRC should contact the fair director PRSEF@CarnegieScienceCenter.org. The fair director will create an SRC member account and set a temporary password for the reviewer at <https://www.STEMisphere.org/PRSEF>. Log in using the temporary password and look for the *My Account Information* tab on the horizontal menu bar just below the black and white speckled area on the screen. To update your password, enter and confirm your new password and then click on *Update*.

Filling multiple roles

If you are filling more than one role (SRC Member and Category Judge for example), you will need to switch between profiles to access all of the applicable forms and functionality. To move between profiles, look to the horizontal menu bar just below the black and white speckled area of your screen. Click on “Registration / Forms” and then on “Manage *Role Name* Forms” to switch to your SRC member or other non-judge role or click on Judge Registration to access your Category Judge profile.

Reviewing Projects

1. Log in at <https://www.STEMisphere.org/PRSEF> and access your SRC Member profile as directed above.
2. The home screen contains a list of project categories, a list of projects which are available to be reviewed and a history of projects you have reviewed separated into projects which are already accepted, those which are ready for re-review and those which are being revised by the student.
3. Select one or more categories of projects to review using the drop-down list and then click on the red *Filter Projects* button. Use the control key to select more than one category. If you do not make a selection from the list, you will see all projects which are ready for review.

Pre-approval projects must be approved by the SRC before the student can begin work. These projects should be prioritized and reviewed quickly when possible. To look at pre-approval projects only, check the box next to “Pre-approval projects only” at the bottom right corner of the category selection box.

You may also choose to prioritize projects which you have previously reviewed and which have been re-submitted with corrections. These will be listed on the right side of your screen under the Needs Reviewed heading. These projects also appear on the main project list; other reviewers can see them as well.

Projects will be sorted in the order in which they were submitted. Please try to review the oldest projects first.

4. Click on a project title in the Name column to review that project. You will be presented with a list of forms for each project.

If the project has been submitted for the first time, none of the forms will have icons next to them.

If the project was reviewed by someone already and has been revised and re-submitted, you will see green check marks and red Xs next to some forms. The forms with green check marks have been approved and the ones with red Xs were not approved. The ones which are blank have been edited since the last review. Be sure to look closely at unapproved and edited forms. Scroll to the bottom of the screen and click on the “Archived Project PDF” link under “Review History” to see the previous version of the forms submitted by the student to ensure that the requested changes have been made satisfactorily.

There is a link to the ISEF rulebook and to the PRSEF rulebook above the list of forms for your reference.

5. To review a project, click on each form. This will expand the information for that form. Click on the text "Click here to View a PDF of the form" or on any attachments to the form to view them. The pdf of each form or attachment will open in another window in your browser. You can review the forms in any order you want. Hint: The forms can be slow to load into the new browser window. Some reviewers find it quicker to open all of the forms and attachments before they begin reviewing the project for content.
6. Use the guidelines at the end of this document to decide if the form should be approved, for suggestions of comments which you can add to the review to address common problems and to determine what impact the form status should have on the overall project status.
7. When you are done looking at the form, you can close that browser window to return to the review screen and make a selection of "Approved" or "Not Approved". You may add comments in the text box. If you choose "Not Approved", you will be required to add a comment to explain what needs to be changed.

Keep in mind that the student and the teacher will be able to read the comments you make in the comment box. Please be clear and constructive. You may use the pre-written comments for common problems contained in the guidelines at the end of this document or write your own comments.

Note: A form should be marked as "Approval Pending" if there is a problem with another form which prevents you from approving the form in question or if more information is needed before you can make a judgement about the form. It should be used if the form in question may not need to be edited before the project is reviewed again.

8. Use the downward facing arrow in the righthand corner of the form box to collapse the review options for the form. Repeat this process for each form.
9. Each form has its own set of requirements for review.
 - a. **Form 1** – The logic which determines which forms are required for a project is embedded in Form 1. If you think that forms which should be required for the project are missing (for example, the student uses a vertebrate animal but does not include Form 5A or 5B), the problem is most likely with Form 1. Check to be sure all of the right boxes are checked.
 - b. **Form 1A** - When you click on Form 1A, there will be a link to the research plan under the link to view the pdf. There will also be a checklist of frequently seen problems which you can use to minimize the typing you need to do in the comment box. You can use both the comment box and the checkboxes.
 - c. **Form 1B** - In addition to a selection of Approved or Not Approved, Form 1B requires a judgement about the necessity for pre-approval and about the involvement of a regulated research institution. It also requires your signature which you may add digitally.
 - c. **Form 3** will have a link to an MSDS form if one was attached.

- d. **Form 4** – This form is required for all projects which involve human participants, including those which use only surveys/questionnaires. Form 4 will include a link to the Survey or Questionnaire (if applicable) and the Human Informed Consent form under the “Click Here to View a PDF of the Form” link. This form also has two shortcut comment boxes for commonly made mistakes. You can use both the comment box and the checkboxes. Appropriate local IRB approval from a Regulated Research Institution may be attached and will over-ride the requirement to complete this form.
 - e. **Form 5A** – This form is required for all projects which involve vertebrate animals and are conducted outside of a Regulated Research Institution (university lab, industrial lab etc.). It also contains a Sign This Form button. You only need to sign the form if you approve it. If you choose the “Not Approved” status, do not add your signature.
 - f. **Form 5B** – This form is required for all project which involve vertebrate animals and are conducted in partnership with a Regulated Research Institution (university lab, industrial lab etc. It may have attachment for IACUC certification, but is otherwise a basic approval. If attached, appropriate local IACUC approval from a Regulated Research Institution over-rides the requirement to complete this form.
 - g. **Form 6A** – This form is required for all projects involving potentially hazardous biological agents - microorganisms, rDNA, fresh/frozen tissue (including primary cell lines, human and other primate established cell lines and tissue cultures), blood, blood products and body fluids. This form requires the signature of the SRC member. You only need to sign the form if you approve it. If you choose the “Not Approved” status, do not add your signature. If attached, appropriate local IACUC approval from a Regulated Research Institution over-rides the requirement to complete this form.
 - h. **Form 6B** – This form is required for all projects involving fresh/frozen tissue (including primary cell lines, human and other primate established cell lines and tissue cultures), blood, blood products and body fluids. Note the overlap with the requirements for Form 6A. Many projects require both forms. This form may have attachment for IACUC certification, but is otherwise a basic approval. If attached, appropriate local IACUC approval from a Regulated Research Institution over-rides the requirement to complete this form.
 - i. **Form 7** – Form 7 will have attachments for last year’s abstract and last year’s research plan which you may open and review.
10. When you have finished reviewing each form and they all have a green check mark or a red X next to them, use the guidelines on the right side of the screen and those at the end of this document to choose a final project status of Acceptable, Conditionally Acceptable, Additional Review Required or Unacceptable and check the appropriate box. The Acceptable option will not be available unless all of the individual forms are approved.
11. You may also add project level comments in the General Comments text box.
12. If the project is being done in a Regulated Research Institution (university lab, industrial lab etc.), check the box which requires Form 1C.
13. If the student did an excellent job of using high quality sources and referenced them correctly in a recognizable format and you feel they deserve a Literature Review Merit Certificate, check the Nominate for Literature Review Merit Certificate box. Approximately 10% of the students should receive a merit certificate.

14. Finally, add your initials and click on the Submit button to complete your review of the project and return to the list of projects which need to be reviewed.

15. Click on the next project in the list and repeat.

Guidelines for Form and Project Approval

| Form | Issue | What to do? | Form Status | Suggested Comment | Project Status |
|------|---|---|--------------|--|--------------------------|
| 1 | Project has human participants (including projects with surveys and questionnaires) but Form 4 is not included. | Return to teacher or student for correction | Not Approved | This project has human subjects. Please change your response to the question "Does this project involve human subjects?" to yes and resubmit this form. | Unacceptable |
| 1 | Project uses vertebrate animals but neither Form 5A or 5B is included | Return to teacher or student for correction | Not Approved | This project uses Vertebrate Animals. Please change your response to the question "Does this project involve vertebrate animals?" to yes and resubmit this form. | Unacceptable |
| 1 | Project involves potentially hazardous biological agents but neither Form 6A or 6B is included | Return to teacher or student for correction | Not Approved | This project involves potentially hazardous biological agents. Please change your response to the appropriate questions regarding microorganisms, rDNA and/or tissues and re-submit this form. | Unacceptable |
| 1 | Regulated Research Institution (RRI) box is checked but the work is not being done in an RRI | Return to teacher or student for correction | Approved | A Regulated Research Institution is a college/university lab or an industrial site. This project is not being done in a Regulated Research Institution. Please change your response to the question "Will the project be conducted at a Regulated Research Institution/Industrial Setting?" to no and re-submit this form. | Acceptable |
| 1A | Location of experimentation is not given | Return to teacher or student for correction | Approved | Please identify the location of the experimentation | Conditionally Acceptable |
| 1A | Date of experimentation is not given | Return to teacher or student for correction | Approved | Please provide the start date (actual or tentative). | Conditionally Acceptable |

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| 1A | Research Institution is checked but no RRI is identified | Return to teacher or student for correction | Approved | A Regulated Research Institution is a college/university lab or an industrial site. Please identify the Research Institution where the work is being done or change your response to "Was this project conducted in a Regulated Research Institution" to no. | Conditionally Acceptable |
| 1A | Project is identified as a continuation project, but it is not | Return to teacher or student for correction | Approved | Please change your response to "Continuation Project" to No. | Acceptable |
| 1A | Project is not identified as a continuation project, but it is one | Return to teacher or student for correction | Pending Approval | Please change your response to "Continuation Project" to Yes, add your previous year's research plan and abstract and complete Form 7. | Additional Review Required |
| 1A | Research plan: The experiment described in the research plan violates ISEF or PRSEF rules or is clearly dangerous | Return to teacher or student for correction | Not Approved | This experiment does not comply with ISEF / PRSEF rules. Reference the rule books at pittsburghsciencefair.org and adjust your project as necessary to follow the rules before resubmitting it for another review. | Unacceptable |
| 1A | Research plan: Current year's research plan is uploaded as previous year's research plan or abstract (generally seen in re-review when the original research plan is inadequate). The research plan is acceptable as written. | Send comment to teacher or student | Approved | The research plan should be uploaded in the current year's research plan field with the following sections: 1) Rationale; 2) Research Question, Hypothesis or Engineering Goal, Expected Outcome; 3) PROCEDURE; 4) Risk & Safety; 5) Data Analysis Procedure; 6) Bibliography | Acceptable |
| 1A | Research plan: No procedure given | Check Box "Methods Procedures not well defined" | Not Approved | Please add the experimental procedure. At a minimum, the Research Plan must contain the following: 1) Rationale; 2) Research Question, Hypothesis or Engineering Goal, Expected Outcome; 3) PROCEDURE; 4) Risk & Safety; 5) Data Analysis Procedure; 6) Bibliography. | Unacceptable |

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| 1A | Research plan: Research Plan is vague, but the process is discernable from information in other forms. The experiment appears to be safe. | Check Box "Methods Procedures not well defined" | Approved | Please clarify the experimental procedure. At a minimum, the Research Plan must contain the following: 1) Rationale; 2) Research Question, Hypothesis or Engineering Goal, Expected Outcome; 3) PROCEDURE; 4) Risk & Safety; 5) Data Analysis Procedure; 6) Bibliography | Conditionally Acceptable |
| 1A | Research plan: Research Plan is vague, but the process is discernable from information in other forms. The safety of the experiment cannot be determined from the level of detail given. | Check Box "Methods Procedures not well defined" | Not Approved | Please clarify the experimental procedure. At a minimum, the Research Plan must contain the following: 1) Rationale; 2) Research Question, Hypothesis or Engineering Goal, Expected Outcome; 3) PROCEDURE; 4) Risk & Safety; 5) Data Analysis Procedure; 6) Bibliography | Additional Review Required |
| 1A | Research plan: Text or figures are not the student's own work and are not correctly attributed to an outside source. | Return to student for correction | Not approved | The Research Plan should be resubmitted with clear attribution of content that is not the student's own work. | Additional Review Required |
| 1A | Research plan: Bibliography has < 5 sources | Check box "Bibliography does not contain 5 sources" | Approved | Bibliography must have 5 sources. To develop your bibliography and your skills for writing one, go to PRSEF's approved link www.WLNonline.org/prsef/ - lots of scientifically INFORMED resources, and guidance for properly formatting. | Conditionally Acceptable |
| 1A | Research plan: Bibliography is not in accepted format | Check box "Bibliography is not written in standard format (APA, MLS, etc)" | Approved | Sources must be in a standard acceptable format. To develop your bibliography and your skills for writing one, go to PRSEF's approved link www.WLNonline.org/prsef/ - lots of scientifically INFORMED resources, and guidance for properly formatting. | Conditionally Acceptable |

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| 1A | Research plan: Bibliography contains only URLs. | Check box "Bibliography is not written in standard format (APA, MLS, etc)" | Approved | URLs only are insufficient for references. To develop your bibliography and your skills for writing one, go to PRSEF's approved link www.WLNonline.org/prsef/ - lots of scientifically INFORMED resources, and guidance for properly formatting. | Conditionally Acceptable |
| 1A | Research plan: Bibliography contains references that are not high quality | Check box "Sources in bibliography are not of high quality (Wikipedia Google etc) | Approved | Sources must be high quality scientific references. To develop your bibliography and your skills for writing one, go to PRSEF's approved link www.WLNonline.org/prsef/ - lots of scientifically INFORMED resources, and guidance for properly formatting. | Conditionally Acceptable |
| 1B | Form 4 or support documents missing for project using human subjects | Do NOT sign this form | Pending Approval | SRC cannot sign this form until Form 4/Informed Consent/Questionnaire is provided | Additional Review Required |
| 1B | Form 5A or 5B missing for project using vertebrates | Do NOT sign this form | Pending Approval | SRC cannot sign this form until Form 5A or 5B is provided | Additional Review Required |
| 1B | Form 6A and/or 6B missing for project involving potentially hazardous biological agents | Do NOT sign this form | Pending Approval | SRC cannot sign this form until Form 6A and/or 6B is provided | Additional Review Required |
| 1B | SRC/IRB Approval Selection not made | If project needs SRC pre-approval (it involves human participants, microorganisms, tissues, vertebrate animals or hazardous materials), check one of the first two boxes; if project does not need SRC pre-approval, check the 3rd box. | | | |
| 1B | One or more other forms are marked as Not Approved | Do NOT sign this form if signature is required | Pending Approval | SRC cannot sign this form until... OR SRC cannot approve this form until... | Additional Review Required |
| 2 | Form is submitted with the teacher as the Qualified Scientist | Approve with comment | Approved | This form is only required if the student is working with a scientist other than the teacher or adult sponsor. A qualified scientist is a person who has earned a | Acceptable |

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| | | | | doctoral/professional degree in a scientific discipline related to student's area of research and/or has extensive experience and expertise in the student's area of research and is thoroughly familiar with the regulations that govern the student's area of research. | |
| 3 | All questions are answered N/A | Review the project. If there are real risks which not identified, this form should be "Not Approved". Otherwise, "Approved" is okay. | Depends, be more lenient with the younger students. | It is a good idea to explain why there are no significant risks associated with a project. This helps the reviewer to understand that the student has thought about any potential risks. Even the simplest projects have some risk associated with them. | Depends |
| 3 | Designated Supervisor (DS) signature is teacher for a project done exclusively at home. | DS should be teacher if project done at school, parent if done at home. | Approved | Since this project is done exclusively at home, the parent is the Designated Supervisor on this form. | Conditionally Acceptable |
| 4 | Consent Form missing information | Return with request for information | Not Approved | Please enter the following data: xxxxx | Additional Review Required |
| 4 | Questionnaire missing | Return for student to supply | Not Approved | Please provide a copy of the questionnaire/survey to be used. | Additional Review Required |
| 4 | Questionnaire asks inappropriate questions | Return for student to make changes | Not Approved | Questions asked are inappropriate (identify the problem). Please rework the questionnaire to remove these questions | Additional Review Required |
| 5A | The study involves causing intentional death of or pain to an animal. | Return to student for redesign | Not Approved | Research projects which cause intentional death or more than momentary or slight | Unacceptable |

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| | | | | pain or distress are prohibited by ISEF and PRSEF rules. | |
| 5A | Veterinarian is required, but no signature is given. | Return with request for veterinarian signature | Pending Approval | Please provide veterinarian signature. Any project which involves supplemental nutrition, administration of prescription drugs and/or activities that would not be ordinarily encountered in the animal's daily life requires a veterinarian. | Additional Review Required |
| 5B | Signature is not that of Qualified Scientist | Return with request for QS signature | Not Approved | Please provide the signature of the Qualified Scientist | Additional Review Required |
| 6A | The biosafety level of the laboratory is not identified. | Return to QS or DS to check the proper boxes. | Approved | Please check the correct biosafety level boxes in section 3 | Conditionally Acceptable |
| 6A | Bacteria sample was cultured in the home. | Bacteria samples may be collected in the home or the field, but must be immediately transported to an appropriate BSL level laboratory. | Not Approved | PRSEF and ISEF rules prohibit the culturing of bacteria in the home. This study must be conducted in an appropriate laboratory. | Unacceptable |
| 6B | Signature is not that of Qualified Scientist or Designated Supervisor | Return with request for QS or DS signature | Not Approved | Please provide the signature of the Qualified Scientist (Designated Supervisor) | Additional Review Required |

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| 7 | <p>Previous Year's abstract and / or project plan are not significantly different from current year. These projects must document that the additional research is a substantive expansion from prior work (e.g. testing a new variable or new line of investigation). Repetition of previous experimentation with the same methodology and research question, even with an increased sample size, is not an acceptable continuation project.</p> | Return for student to make changes | Not Approved | <p>A continuation project must contain substantive additional research from prior work (e.g. testing a new variable or new line of investigation). Repetition of previous experimentation with the same methodology and research question, even with an increased sample size, is not an acceptable continuation project. Please expand upon this year's project with original research.</p> | Additional Review Required |
| 7 | <p>Previous Year's abstract and/or project plan is not attached or not sufficient.</p> | Return for student to make changes. | Not Approved | Please provide the abstract or project plan for last year's experiment. | Additional Review Required |

Choosing a project status

Reasons to mark a project **UNACCEPTABLE**

1. Serious safety concerns; State or federal laws are being disobeyed
2. No research plan is included or procedure is missing
3. Problem/hypothesis or method/procedure is vague **AND** the project is likely to be dangerous
4. Violation of ISEF or PRSEF rules
 - a) Incubating bacteria at home or otherwise outside of a lab that is rated at least BSL-1
 - b) Vertebrate animals or human subjects are being caused pain
 - c) State or federal laws are being disobeyed
 - d) See links to extensive rules in ISEF Rules and Guidelines
5. If Human Subjects Research,
 - a) Study has started without documented IRB Approval prior to project start
 - b) Informed consent not obtained (if required) prior to participant activities
 - c) Human Informed Consent form addresses risks to researcher, not risks to participants

Reasons to mark a project **ADDITIONAL REVIEW REQUIRED** – items which must be resolved prior to PRSEF and be reviewed again by the SRC before the fair

1. IRB forms (4, 5A/B, 6A/B) are required but not provided
2. Human Informed Consent form is required but not provided.
3. Human Informed Consent form does not list the risks and procedures.
4. Questionnaire / survey is required, but not provided (human subject projects, if applicable).
5. In a human participant study, the topic of study is one which could engender a feeling of shame, inadequacy, social exclusion, or prejudice. This is a serious risk factor in these experiments. Check for “trigger” words.
 - a) Examples of trigger words would be those related to: deception, social preference, friends, race/racism, religion, abuse, bullying, weapons, drugs, alcohol, mental illness, depression, girlfriend/boyfriend
 - b) Surveys containing trigger words will not automatically disqualify a study, but should prompt a thorough review of the content.
 - c) If the topic of study indicates a high probability of this type of question and the questionnaire is not included, the project may be rated UNACCEPTABLE

Reasons to mark a project **CONDITIONALLY ACCEPTABLE** – items which should not be repeated, but whose resolution does not need to be confirmed by the SRC before PRSEF. Items must be corrected if the student is accepted for ISEF.

1. The bibliography does not contain enough sources or is not formatted correctly
 - a) Fewer than 5 sources are listed

- b) Only URLs are listed in the bibliography. References must be formatted correctly in a recognized format.
 - c) References are not legitimate science sources (e.g. Wikipedia, Google, etc.)
2. Problem/hypothesis or method/procedure is vague, but the project is unlikely to be dangerous

Note: Form 1C is not required prior to experimentation.

For team projects

Only one Form 1 and one Form 1A is required **per project** – One Form 1B is required for each **student**.