

Name: Enter your name here.

Grade: Enter your grade here.

Category: Enter your proposed ISEF category here.

More information available at [All Categories | Society for Science](#).

Project Title: Enter your proposed project title here.

This cannot exceed 65 characters including spaces. (Place character count after title in parentheses.)

Will this be an individual or team project? Team or Individual (select one and delete extra text)

Team Member Name and Grade: Type the name of your team members

Team Leader: Type the name of your team leader

Part A: Rationale and Research Question / Problem

Guide on how to write the rationale for your research:

Understand Your Research Topic: Before you can write a rationale, you need a clear understanding of your research topic. Be well-versed in the subject matter and identify the specific research question or problem you aim to address.

Support with Evidence Throughout: Provide evidence or examples that demonstrate the need for your research. Cite relevant studies, statistics, or real-world scenarios that illustrate the problem or gap you're addressing.

Refer to the Research Plan Instructions from ISEF ([1A-Student-Checklist-Research-Plan-Instructions](#)) for further clarification.

Below is a basic outline:

Identify the Gap: Start by explaining the existing knowledge or literature related to your research topic. Point out the current state of understanding, highlighting any gaps, unanswered questions, or areas where further investigation is needed.

Define the Problem: Clearly state the research problem or question that your study intends to address. Make it concise and specific, so the reader understands the focus of your research.

Highlight Significance/Relevance: Explain why your research matters. Discuss the potential impact of your findings, both in terms of theoretical contributions and practical applications. Consider the following aspects:

- How does your research advance existing knowledge?
- Does it have real-world implications or applications?
- Is it relevant to a specific field, industry, or society?

Describe Your Solution: Summarize the goal of your project. State the work that will be done. How will you conduct your research to produce data that can be analyzed. What is the goal of your investigation. Give your hypothesis.

Part B: Hypothesis or Engineering Goals

For scientific projects: enter your hypotheses, sub hypothesis, and null hypothesis here

For engineering projects: state engineering goals here; include testing criteria that must be met to satisfy the stated goal and constraints that will define the parameters of the work.

Part C: Detailed Description of Procedures

Experimental Design:

For scientific projects, clearly identify the following: Independent Variable, Dependent Variable, Control, and Number of Trials. Include the unit of measurement/values of each variable. If your project has multiple phases, repeat the experimental design for each.

For engineering projects, include engineering goals, criteria for meeting the goals, constraints that help define the goals, tests and steps for optimization based on testing. You may include a prototypical drawing(s) identifying what modifications will be made and tested.

List of Materials:

Create a list of major items and the quantity of each.
(Itemized list does not need to be written out in paragraph form.)

Procedure:

Enter your procedure description here. This should include the identification of the important major sections of the procedure and a description of each section of the project. If this is an engineering project, include the method for design, manufacture, modifications and testing.

Risk and Safety:

State any potential risks and state the safety precautions that will be followed. MSDS/SDS documents can provide proper safety information.

Data Analysis:

Describe the procedures you will use to analyze the data that answer your research question or hypothesis. What will be measured, including units, for each test, whether for a scientific or engineering project. This should include how you plan on graphing your data. Include details of any descriptive and/or inferential statistics.

Part D: Bibliography

List a minimum of 5 valid references in APA format. If the sources were cited in your rationale, procedure, or data analysis use proper in text citations to connect to your bibliography. Credible sources include peer reviewed scientific journal articles. Government agencies and public funded groups are a credible source for statistics and data.

Subject-Specific Guidelines

Items 1–4 below are subject-specific guidelines for additional items to be included in your research plan/project summary as applicable. These may not apply to your research.

Delete sections that do not apply to your project. Completely answer those that do apply.

Enter any additional items that are required by ISEF for your research plan based on the elements it includes. If you have questions about one of these areas apply to you, please refer to the rules website for each.

1. Human participants research:

<https://sspcdn.blob.core.windows.net/files/Documents/SEP/ISEF/2025/Rules/Book.pdf#page=9>

- a. **Participants:** Describe age range, gender, racial/ethnic composition of participants. Identify vulnerable populations (minors, pregnant women, prisoners, mentally disabled or economically disadvantaged).
- b. **Recruitment:** Where will you find your participants? How will they be invited to participate?
- c. **Methods:** What will participants be asked to do? Will you use any surveys, questionnaires or tests? If yes and not your own, how did you obtain it? Did it require permission? If so, explain. What is the frequency and length of time involved for each subject?
- d. **Risk Assessment:** What are the risks or potential discomforts (physical, psychological, time involved, social, legal, etc.) to participants? How will you minimize risks? List any benefits to society or participants.
- e. **Protection of Privacy:** Will identifiable information (e.g., names, telephone numbers, birth dates, email addresses) be collected? Will data be confidential/anonymous? If anonymous, describe how the data will be collected. If not anonymous, what procedures are in place for safeguarding confidentiality? Where will the data be stored? Who will have access to the data? What will you do with the data after the study?
- f. **Informed Consent Process:** Describe how you will inform participants about the purpose of the study, what they will be asked to do, whether their participation is voluntary and they have the right to stop at any time.

2. Vertebrate animal research:

<https://sspcdn.blob.core.windows.net/files/Documents/SEP/ISEF/2025/Rules/Book.pdf#page=12>

- a. Discuss potential ALTERNATIVES to vertebrate animal use and present justification for use of vertebrates.
- b. Explain potential impact or contribution of this research.
- c. Detail all procedures to be used, including methods used to minimize potential discomfort, distress, pain and injury to the animals and detailed chemical concentrations and drug dosages.
- d. Detail animal numbers, species, strain, sex, age, source, etc., include justification of the numbers planned.
- e. Describe housing and oversight of daily care.
- f. Discuss disposition of the animals at the end of the study.

3. Potentially hazardous biological agents research:

<https://sspcdn.blob.core.windows.net/files/Documents/SEP/ISEF/2025/Rules/Book.pdf#page=16>

- a. Give source of the organism and describe BSL assessment process and BSL determination.
- b. Detail safety precautions and discuss methods of disposal.

4. Hazardous chemicals, activities & devices:

<https://sspcdn.blob.core.windows.net/files/Documents/SEP/ISEF/2025/Rules/Book.pdf#page=20>

- a. Describe Risk Assessment process, supervision, safety precautions and methods of disposal.
- b. Material Safety Data Sheets are not necessary to submit with paperwork.