

Project Component – Research Plan

What is a Research Plan?

Once students have selected their project focus through brainstorming and observing, they need to outline their proposed project and have it approved before beginning data collection. A Research Plan is a succinct detailing of background research, relevance, and rationale for the project, research question or engineering goal, expected outcomes, hypothesis(es), planned procedures, potential risks and planned safety procedures, and bibliography. It contains no experimental data but instead lays out the road map for a student to successfully navigate the process. Through this plan, students should aim to represent their project as important, doable and unique in its approach. Should any changes occur to the research plan during the process, they should be added to the final document.

Why should you use a Research Plan?

A completed research plan allows the adult sponsor and the Scientific Review Committee to ensure that a student's project meets all MSEF requirements. It also provides students with a clear roadmap for their project from start to finish.

What to Include in Your Research Plan

Basic Requirements:

- The rationale for completing your project, which is basically a brief summary of the background that supports your research question/problem and why this research is important. If applicable, include any societal impact.
- Your hypothesis(es), research questions or engineering goals, and any expected outcomes. Make sure to connect these to your rationale.
- A description of your procedures and experimental design, how you plan to analyze the data, an assessment of any potential risk factors, and the conclusions you can potentially draw from your results.
- A bibliography with at least five (5) major references (e.g. science journal articles, books, Internet sites, etc) from your literature review. Use an approved format (APA), and include an animal care reference if you plan to use vertebrate animals.

There are subject-specific guidelines for any projects that involve the following: human participants research, vertebrate animal research, potentially hazardous biological agents research, and hazardous chemicals, activities & devices. These guidelines can be viewed in detail in the MSEF HS and MS manuals.

Please note, different schools use different versions of a research plan so the exemplars may not match the templates provided perfectly. They can still be used as guides.