Flight Experiment Proposal Guide

International Journey Spaceflight Experiments Program (IJSEP)

This guide explains exactly what you need to include in your proposal to design a real microgravity experiment for our next space mission.

How to Use This Guide

- Follow the checklist so you don't miss anything.
- Read each section carefully before you start writing.
- Use the provided style rules so every proposal looks professional and fair.

Proposal Checklist

Your proposal must include the following sections in order:

1. **Cover Page** – 1 page with proposal summary (250 words max)
2. **Student Team Members & Professional Advisors** – no page limit
3. **Experiment Materials & Handling Requirements** – no page limit
4. **The Question to be Addressed** – 2 pages max
5. **Experiment Design** – 3 pages max
6. **List of References** – no page limit
7. **Teacher Certification Letter** – signed by Teacher Facilitator

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Style & Format Rules

All proposals must:

- Be on **8.5" x 11" paper** with **1-inch margins**
- Use **Times New Roman, 12pt, black font**, single-spaced
- Be carefully **proofread** for spelling and grammar
- Include **page numbers**
- Follow one consistent **citation style** (APA, MLA, etc.)

Proposal Sections – What to Include

Section I: Cover Page

- **Title:** Focus on what's being studied, not the team name.
- **School & Teacher Info:** Include teacher's name, email, and cell phone (for urgent questions).
- **Summary (250 words):** A simple explanation of your experiment and why it matters. *Don't include* specific procedures or facts needing references.

Section II: Student Team & Advisors

List:

- **Co-Principal Investigators:** Students leading the experiment
- **Co-Investigators:** Students working on major tasks
- **Collaborators:** Students with supporting roles
- **Advisors:** Optional – scientists, teachers, or experts who helped

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Section III: Experiment Materials & Handling

Describe:

- **Mini-lab Type** (e.g., FME tube)
- **Samples & Amounts** (e.g., 0.1g yeast, 5 radish seeds)
- **Thermal or Special Handling Needs**

If your experiment is chosen, NASA will require more details for safety review.

Section IV: The Experiment Question

Explain:

- The **main scientific question** you want to answer
- **Why space?** Why the question needs microgravity to be answered
- What's **already known** about the topic
- How your results will **add to scientific understanding**

Section V: Experiment Design

Include:

- **Rationale:** How your experiment answers the question
- **Materials:** Why you chose them and how you'll get them
- **Procedure:** Step-by-step, including crew interactions and testing
- **Analysis Plan:** How you'll study results after the flight

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Section VI: References

- Cite sources for any facts not common knowledge
- Include URLs for any online references
- Use any consistent citation style (APA, MLA, etc.)

Section VII: Teacher Certification Letter

Your teacher must sign a letter confirming:

- Students designed and wrote the proposal themselves
- Samples meet mission requirements
- The team has access to required facilities and equipment

A sample letter is provided for your teacher to use.

Final Tips

- Write clearly and keep it simple
- Use headings so your proposal is easy to read
- Double-check your spelling, grammar, and formatting
- Submit on time!

Section VI. List of Reference Publications

All statements of fact that are not considered common knowledge should include a citation in the text for the reference publication where the information was obtained, and those publications must be listed here. References not cited in the proposal should not be included.

Note: *there are multiple citation styles (APA, AMA, etc.). The community is free to use whatever citation style they have adopted for students. However, if using a web reference, please provide the complete URL in the List of References.*

Section VII. REQUIRED Letter of Certification by the Teacher Facilitator (template below)

Note: this letter must be signed by the Teacher Facilitator, scanned, and emailed to Michaelis Foundation (MF) as a PDF document.

[Date]

I certify that the student team designed the experiment described herein and authored this proposal, and not a teacher, parent, or other adult. I recognize that the purpose of this letter is to ensure that there was no adult serving to lead experiment definition and design, or write the proposal, and thereby provide content and/or professional expertise beyond that expected of a student-designed and student-proposed experiment.

I also understand that MF recognizes that facilitation of thinking across the student team through advice and counsel by the team's Teacher Facilitator, other teachers, and local area and national researchers, is not only to be encouraged but is absolutely vital if students are to receive the necessary guidance on the process of scientific inquiry, experimental design, how to do background research in relevant science disciplines, and on writing the proposal. I also understand that it is appropriate for the Teacher Facilitator and other teachers to provide editorial comment to the student team on their proposal drafts before proposal submission.

I also certify that the samples list and the special handling requests listed in this proposal are accurate and conform to the requirements for the Space Mission. I confirm that the team, after reviewing their procedure and budget for obtaining the samples for the experiment, is certain that they will be able to obtain the necessary samples for their experiment in time to meet the deadline for shipping the flight-ready. If using human samples, the team is aware that these samples must be tested for prohibited viruses before the experiment can be selected for flight.

Finally, I certify that the student team will have access to the proper facilities and equipment to prepare the FME mini laboratory for flight and to analyze the samples after the flight.

[Signature]

[Name]
Teacher Facilitator