

International Journey Spaceflight Experiments Program - IJSEP



Note:

- This document is a template for your IJSEP Flight Experiment Proposal. Please remove all comments and example texts before submission (blue and yellow highlights) and fill in each section with your experiment's information.
- When finished, submit your proposal in .doc format to ijsep.contact@gmail.com.
- The e-mail subject line must follow this format: School Name / Team Name / Experiment Title

Section I – Cover Page

(1 page)

Experiment Title: *(Focus on what is being studied, not your team or school name)*

School Name:

Team Name:

Grade Level(s):

Teacher Facilitator:

- Name:
- Position:
- E-mail:
- Cell phone (required for urgent contact):

Proposal Summary (max 250 words):

(Briefly explain your experiment and why it matters. Write in third person — e.g., “The investigation will...” Do not include procedures, data, or facts that require references.)

Section II – Student Team Members & Advisors

(2 pages max)

Co-Principal Investigators

(Students leading the experiment design or major activities)

- Name / Grade

Co-Investigators

(Students responsible for key experimental tasks)

- Name / Grade

Collaborators

(Students assisting with support roles or specific expertise)

- Name / Grade

Professional Advisors (optional)

(Scientists, teachers, or professionals who provided guidance)

- Name / Organization / Contribution

Section III – Experiment Materials & Handling Requirements

(2 pages max)

Mini-Lab Type

☐ Type 1

☐ Type 2

☐ Type 3

(Refer to FME types and choose one.)

List of Proposed Samples

Mini-Lab Volume	Fluids/Solids	Amount	Purpose/Role
Volume 1			
Volume 2			
Volume 3			

(Write NA if not applicable.)

Origin of Samples

Are any samples of **human origin**? ☐ Yes ☐ No

If **yes**, confirm tests required for safety clearance and provide brief status:

Thermal Requirements

Transport Stage	Refrigerated	Ambient
Shipping to launch site	☐	☐
Storage before launch	☐	☐
On board the ISS	-	✓ (required)
Return to Earth	-	✓ (required)

Proposed Crew Interaction Timeline

When	Descriptor	Requested Interaction
On arrival at ISS	A=0	
2 days after arrival	A+2	
2 weeks before return	U-14	
5 days before return	U-5	
2 days before return	U-2	

(Allowed actions: open/close clamp, shake gently/moderately/vigorously up to 120s, wait, expose to ambient light. No observation, photography, or opening of the FME is allowed. Please refer to the FME Operation Guide)

Section IV – The Question to be Addressed

(2 pages max)

(Explain:

- *The **scientific question** your team wants to answer.*
- ***Why it must be done in microgravity** (what difference does microgravity make?).*
- *What is **already known** on this topic.*
- *How your experiment could **expand scientific understanding**.*
- ☐ *Tell the “story” of your experiment. Use clear logic and simple explanations.)*

Section V – Experimental Design

(3 pages max)

1. Rationale:

(How your experiment answers the question.)

2. Materials:

*(Why you chose them, how you'll get them, and that they are safe and available.)
Please refer to the guide "Required Specificity of Samples".*

3. Procedure:

*(What happens before, during, and after launch.
How the experiment will be activated and mixed in the FME.
Why specific crew interaction days were chosen.
Any tests you did on Earth to check the procedure.)*

4. Ground Controls:

(How you'll reproduce the same experiment on Earth for comparison.)

5. Post-Flight Analysis:

*(What measurements or tests you will perform on returned samples.
How you will determine if your hypothesis is correct.
What equipment or lab access you'll need.)*

Section VI – References

(1 page max)

*(List all sources cited in the text.
Follow the **Vancouver** citation style.
Include full URLs for online references.
Do not list references that are not cited in the text.)*

Example – Vancouver Citation Style

(Use this as a guide when formatting your references.)

Note: The references below are for demonstration purposes only and do not always correspond to real publications.

Journal articles

1. Smith JA, Brown T, Lee K. Effects of microgravity on protein stability. *J Space Biol.* 2022;45(3):210-8.
2. Santos F, Oliveira R. Antioxidant response of plant seeds exposed to spaceflight. *Acta Bot Bras.* 2021;35(4):915-22.

Books

3. Johnson M. *Introduction to Microgravity Research*. 2nd ed. New York: Springer; 2020.
4. Barros P, Costa L, editors. *Cell Biology for High School Experiments*. São Paulo: Edusp; 2019.

Book chapters

5. Green D, Patel R. Biomaterials used in space research. In: Walker A, editor. *Advances in Space Biotechnology*. London: Academic Press; 2021. p. 75-98.

Websites

6. NASA. Microgravity overview [Internet]. Washington (DC): NASA; 2023 [cited 2025 Jan 10]. Available from: <https://www.nasa.gov/microgravity>
7. IJSEP. Experiment Safety Guidelines [Internet]. 2025 [cited 2025 Nov 4]. Available from: <https://internationaljourney.org/resources>

Reports

8. European Space Agency. *Life Science Experiments on the ISS: Final Report*. Paris: ESA; 2022.

In-text citation examples:

- “Microgravity can alter protein folding (1,2).”
- “Previous studies have shown similar effects (3-5).”
- “According to NASA (6), microgravity significantly affects fluid dynamics.”

Please refer to this website for a complete guide on how to use the Vancouver Style for your references: <https://library-guides.ucl.ac.uk/referencing-plagiarism/vancouver>

Section VII. REQUIRED Letter of Certification by the Teacher Facilitator

(Template below)

Note: This letter must be signed by the Teacher Facilitator, saved as a PDF file, and sent in the same e-mail as the proposal to ijsep.contact@gmail.com

[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 IJSEP 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