SAMPLE – NOT FOR CONTEST ENTRY

Entries must be submitted via the electronic submission form to be considered

Genes in Space 2025

Application Form – over 13

Contestant

First name _____ Last name _____ Age _____

Address _____

Email _____ Phone _____

Grade in school (must be in grade 7 – 12)_____

School or institution mailing address

Name of school or program

_____

Address

_____

Teammate (optional; limit 1)

First name _____ Last name _____

Email _____ Phone _____

Grade in school (must be in grade 7 – 12) _____ Age _____

Name of your adult sponsor (teacher/parent/guardian/other)

First name _____ Last name _____

Email _____ Phone _____

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APPLICATION

1. Provide a descriptive title for your project that describes your experimental goal. *Maximum 100 characters.*

2. Provide background information that describes the space biology problem or challenge you propose to address. Explain why this topic is significant for humanity, relevant for space exploration, and scientifically interesting. *Maximum 100 words.*

3. Name the molecular or genetic target that you propose to study. Then, describe how it relates to the space biology challenge your proposal addresses. Examples of molecular targets include individual genes and proteins, DNA and RNA sequences, or broader -omics approaches. *Maximum 100 words.*

4. Clearly state your hypothesis or research goal. Then, explain the reasoning behind your hypothesis OR explain the rationale for your research goal. *Maximum 100 words.*

5. Identify the sample(s) you will test in your experiment and the variable(s) you will measure. Then, explain the reasoning behind these choices. *Maximum 100 words*.

6. Toolkit
   a. Which tool(s) from the GiS toolkit will you use:
      - ☐ miniPCR thermal cycler
      - ☐ BioBits® cell-free protein expression system
      - ☐ P51™ Molecular Fluorescence Viewer

   b. Explain how your experimental plan will utilize the selected tools. *Maximum 100 words.*

7. Citations (optional)

Scoring Criteria

I. **Proposal relates to an open question or challenge relevant to space biology** .
- Significance to humanity explained.
- Relevance to space exploration articulated.

II. **Proposed experiment must have a clear rationale for conduct aboard the International Space Station.**
- Experiments that could be conducted solely under Earth conditions will not be considered.

III. **Selected space biology problem can be explored using molecular biology methods, and a specific molecular/genetic target has been identified for investigation.**
- Specific molecular/genetic target for investigation is named.
- Target is relevant to the identified space biology problem.

IV. **Hypothesis or research goal is clear and well-reasoned.**
- Hypothesis or research goal demonstrates an understanding of prior work done in the field.
- Clearly explains how hypothesis or research goal will advance the field.

V. **Experimental plan is clear and actionable.**
- Experimental plan is appropriately detailed and specifies variables, samples, and controls.
- Experimental plan clearly conveys the nature of the data that will be collected.

VI. **Experimental design makes sensible use of the Genes in Space Toolkit**
- The experiment uses at least one of the toolkit options (miniPCR® thermal cycler, BioBits® cell-free protein expression system, P51™ Molecular Fluorescence Viewer).
- Rationale for using the selected tool(s) is accurate.
- Selected tool(s) will yield data addressing the identified space biology problem.

VII. **Proposal communicates ideas clearly and convincingly.**
- Writing is easy to follow.
- Arguments are engaging and persuasive.
- Writing is precise without significant logical leaps or the need for additional interpretation.