

Technical Evaluation

New Proposals have a total possible score of 75

Re-flights have a total possible score of 95

Administration will adjust the scores to their percentage score for final ranking. For example, a new proposal with 60/75 has a final score of 80. A re-flight proposal with 77/95 will have a final score of 81.05.

Question 1 – Is the experiment, as proposed, “Good Science”? (15 points)

Student experiments need not be “ground breaking science” but should be good, solid research studies. Some important points:

- Does the experiment have a clear hypothesis or research question? (3pts)
- Are test parameters clearly identified? (3pts)
- Are all other parameters fixed from test to test? (3pts)
- Are there reference/control tests? (3pts)
- Does this proposal fit the “good science” parameter? (3pts)

- How does it fit (or what might be missing)?

Question 1 Score: _____ out of 15 possible.

Please comment

Question 2 - Is it obvious, from the proposal, that students have done enough background research into the concepts and phenomena to understand what they are proposing and why? (Max – 5 pts)

- What proposal evidence can you cite?
- Are there any other aspects or features which demonstrate “scientific merit” which you would like to highlight for the students?

Question 2 Score: _____ out of 5 possible.

Please comment

Question 3 – Is microgravity required? (10 points)

- Is the experiment clearly explained and the need for microgravity clearly established? (5pts)

- Can the experiment be produced within the limitations of a reduced gravity flight aboard the Reduced Gravity Aircraft? Please explain. (5pts)

Question 3 Score: _____ out of 10 possible.

Please comment

Question 4 – Is the experiment designed well? (15 points)

Please elaborate on any positive or negative aspects of the experimental design and approach.

- Is there a well-conceived approach for designing, building and testing the hardware? (5pts)
- If the experiment and procedures work as proposed, are the researchers likely to obtain measurable, reliable results? (5pts)
- Is there sufficient detail on the design, hardware, research question, procedures, etc. to tell what will be done; or is the proposal really too vague to judge? (5pts)

Question 4 Score: _____ out of 15 possible.

Please comment

Question 5 – Data Collection and Analysis (15 points)

Data gathered must ultimately address the research question posed – please comment on the team’s choice of data to be gathered, collection methods and analysis.

- Can the experiment be reasonably expected to generate meaningful data during two consecutive flights of 30 parabolas each? (5pts)
- Does the proposal provide adequate means for measuring the effects of the experimental treatment? (5pts)
- Can the data collected be reasonably expected to answer the hypothesis proposed in the proposal? (5pts)

Question 5 Score: _____ out of 15 possible.

Please comment

Question 6 – References & Bibliography (15 points)

The basic question is – have the students done their homework?

- Are students using recent references from recognized and reliable sources? **(5pts)**
- Have they located a representative number, or are there well established studies which they have missed? **(5pts)**
- Do they cite ideas from their bibliography in the proposal or is their bibliography probably a copied list from somewhere else? **(5pts)**

Question 6 Score: _____ out of 15 possible.

Please comment

*****If the proposal is not a follow-on (re-flight), please skip to Summary comments.*****

Question 7 – Rationale for Follow-On Flight (10 points)

Some investigations are actually follow-on flights of earlier student experiments. Students usually designate them as “Part 2” or “Part 3” to differentiate them from the earlier flight. This is fine as long as the re-flights DO NOT simply DUPLICATE the earlier flight. We are expecting a justification for re-flight which clearly explains why the experiment must be re-flown and describes the differences between this and the earlier flight(s).

- Does this proposal adequately address why the experiment must be re-flown. **(5pts)**
- Does this proposal adequately address and describe the scientific differences between this and the earlier flight(s). **(5pts)**

Question 7 Score: _____ out of 10 possible.

Please comment

Question 8 – Value of Follow-On Flight (10 points)

If the team encountered problems on their previous flight, are you satisfied that the team has isolated their previous problem and that it is likely that the new idea will work?

OR

If there was not a problem, are you satisfied that this re-flight is exploring an important new variable?

Question 8 Score: _____ out of **10** possible

Please comment

SUMMARY Comments

What strengths do you see in this proposal?

What weaknesses do you see in this proposal? Are any of the weaknesses show-stoppers (that is, weaknesses so prominent that the experiment should not be flown until/unless they are addressed).

Student investigators are NOT required to pursue areas of interest to NASA and points should not be based on this parameter. However, please indicate if you see any potential value to the NASA community contained in this proposal.

Are there any other comments which you would like us to communicate to the students?