

Judging for Contest “Blueprint a Healthy Lifespan for Earth and Mars” Challenge- Name:

- 1) The entry must be appropriate and meet the submission criteria as described in the White Paper Guidelines on the website
- 2) Artist’s depictions of real or identifiable fictional persons must be copyrightable by the artist. Any work not the entrant's own, real or fictional, needs to be credited.
- 3) Judges will take care to identify any plagiarism, in whole or in part, in the entrant's submission.
- 4) After entrant meeting all stated guidelines of submission it is determined by a consensus of the judges sufficient artistic merit has not been achieved, the judges may decide not to give out any Grand, First, and/or Honorable Mention awards in any particular year, grade or category.
- 5) Entrants will be provided with the study questions below to address in the Background section of their paper as they develop their **“Blueprint a Healthy Lifespan for Earth and Mars” Challenge**
- 6) Participants review the rubrics before submitting their final entry.
- 7) Based on the entrant's submission category one of the following rubrics will be used by the judges.

Judges will determine how well participants address these questions:

Use the following questions as guidelines for the Background section of your paper:

- How would you describe the basic benefits claimed for your healthy lifespan plan, as it would affect healthy lifespan as an outcome?
- Does the genetic/mitochondrial damage from common exposures on earth (e.g., seed oils, fructose, sucrose, pesticides, dissolved metals, food toxins) affect your metabolic health and ability to develop a healthy lifespan?
- Would you expect the genetic/mitochondrial damage from space ionizing radiation to add to pre-existing DNA/RNA damage and therefore limit healthy lifespan?
- Would you expect the genetic/mitochondrial damage from space ionizing radiation to be reduced or eliminated by your healthy lifespan plan?
- If you elected the metabolic study as part of your healthy lifespan plan, would you recommend the plan also for the analog mission and why?

Specify the sources (processed and/or fresh, grown on-board) of the food.

- Specify types of fats and proteins such as insects and synthetic proteins as well as 3D printed foods (from stem cells), plant extracts, and perhaps 3D printed plant extracts.
- Include estimates regarding shelf life, packaging, sterilization, aesthetics: appearance, taste, smell, texture, etc.
- Provide a detailed food, nutrition and fasting plan for the 3-month duration of the study, using a repeating 7-day plan

Students were Given the Following White Paper Requirements:

The white paper will be generated in Microsoft Word and submitted electronically in pdf format, properly formatted as if it were a text document and following the guidelines below.

1. All papers must be typewritten, double-spaced on one side only of 8 ½” x 11” paper, with 1” margins on all sides. Use 12-point Times New Roman font. **Eval:**
2. Paper is limited to 15 pages. This does not include the title, table of contents, abstract, appendices or references pages.- . **Eval:**
Do not place names of people involved in the creation of the paper or the school(s) involved in the paper.. **Eval:**
3. The pages of the paper must be numbered consecutively beginning with the Introduction. Diagrams and tables may be included either within the paper or as part of the Appendices. . **Eval:**
4. In general, the contents of the paper shall be organized as follows:
5. **Title page:** Only include the title. The title should consist of the minimum number of keywords necessary to portray accurately the contents of the paper. Reader interest is stimulated by a well-chosen title. The author’s name must **NOT** appear on the title page, nor should any other persons or schools. . **Eval:**
 - a. **Table of Contents:** The table of contents should consist of a list of the parts of the paper and the page numbers, in order in which they occur. **Eval**
 - b. **Abstract:** The abstract should not describe the paper, but should give, in brief, the essential facts of its contents; for example, a brief of the problem or objective and a concise summary of the results or conclusion, touching upon methods or other details only if they are unique or if they are of some particular significance. The abstract should be no longer than 100 words. **Eval**
 - c. **Introduction:** The introductions should lead to the development of the subject so that the reader may obtain a clear understanding of the significance of the content, data presented, and/or conclusion. This can often be done by briefly giving the state of the art as background and then by bringing out the added advantages of the method of approach and emphasizing the importance of the results or conclusions. **Eval**
 - d. **Body:** The main argument of the subject is carried out in the body or its subsections, complete with supporting data. The argument should proceed in a logical sequence according to a prepared outline. The writing should be in the

third person. Support data and results can be presented most effectively as graphs, charts, or tables. **Eval**

- i. Standard graphical symbols and abbreviations should be used on all drawings. Well-known abbreviations may be used in the text but should be defined where used the first time followed by the abbreviation in parentheses. Generally, the use of abbreviations should be confined to tables and illustrations. **Eval**
 - ii. Illustrations and tables should supplement, not duplicate, text materials. Likewise, they should complement, not duplicate, each other. **Eval**
- e. **Conclusion:** The conclusions are often considered the most important part of a paper. They should be stated concisely in a separate section at the end of the paper. If there are three or more conclusions, better emphasis can be obtained by numbering or labeling each conclusion and setting it off in a separate paragraph. **Eval**
- f. **Tables:** Generally, each table should be typed on a separate sheet in an appendix and numbered consecutively using Roman numerals: Table I, Table II. However, they can be inserted as part of the 15 **coordinate numbers** pages. Small tabulations or listings may be made in the text where necessary for continuity. Each table should be titled by giving the brief description as a heading following the table number at the top. Ditto marks should not be used in tabled data, but brackets may be used to group information on several lines. **Eval**
- g. **Figures:** Figures should be numbered consecutively using Arabic numerals: Figure 1; Figure 2, etc. Three types of figures may be used: photographs, biochemical pathways, and line drawings. The reading material on illustrations should be kept to a minimum. In short, the reading material should be included in the captions. Portions of the illustrations may be identified by letters and explained in the captions. Whenever feasible in graphs, several trend lines or regression curves should be combined on the same coordinates. Their identifying letters or numbers should be in clear spaces between cross section lines. Readers generally prefer having the figures distributed through the paper, although it is also permissible to bind them together at the end in an appendix. **Eval**
- h. **Appendices:** There may be no more than 5 pages of appendices. Detailed biochemical pathways, development of nutrition sub-components in tables and examples, which are subordinate to the main argument in the body of the paper, and not essential to following the argument, should be treated in the appendices. Main graphs as they are developed should be numbered consecutively. The graphs, figures, and tables in the Appendices should be numbered consecutively, following the numbers used for the graphs, figures, and tables in the text (such as, if table IV were last in the text, table V would be first in the Appendices.)
- i. **References:** To enable the reader to consult important works used by the author incidental to the preparation of the paper and other related literature that might be helpful, a suitable reference list should be appended. References should be numbered consecutively and should follow MLA formats. Examples are shown below: **Eval:**

<p>Author: _____</p> <p>Total Points by _____: out of 105 points</p>	Distinguished	Proficient	Basic	Unsatisfactory
Points	5	4	3	2
<p>1. Submission requirements - length, formatting, and sections, etc. as stated in the White Paper Guidelines Priority:3 8 pts possible, __ pts awarded</p>	<p>Meets all submission requirements</p> <p>Score:</p>	<p>Meets most but not all of submission requirements. Missing elements are minor.</p>	<p>Meets most but not all of submission requirements, Missing at most one major component.</p>	<p>Meets a few of the submission elements</p>
<p>2. Focus Priority:1 11 pts possible __ pts awarded Score:</p>	<p>Excellent selection of topic(s) that addresses appropriate PDLDSF subject areas</p>	<p>Good selection of topic(s) that addresses an appropriate subject area</p>	<p>Some topic components are not specifically for the topic</p>	<p>Almost all topic(s) is/are not related</p>
<p>3. Images* Priority:3 8 pts possible __pts awarded Score:</p>	<p>An excellent variety of images are used and are well suited to the chosen topics</p>	<p>Very good use of images and are well suited to the chosen topics</p>	<p>Some chosen images are not relevant to the chosen topics</p>	<p>Images are not relevant to the chosen topics</p>
<p>4. Image Originality Priority:3 8 pts possible, __ pts awarded Score:</p>	<p>Images are original and either creatively hand drawn or of graphic design</p>	<p>Images are original and either tastefully hand drawn or of graphic design Score:</p>	<p>Some images are either not original or adequately drawn but source is cited</p>	<p>Some images are either not original or poorly drawn and source not cited</p>

<p>5.Text* Priority:2 9 pts possible, __pts awarded Score:</p>	<p>Text is easy to read, correct language usage. (Bonus for hand printed or written text)</p>	<p>Text is readable with some difficulty and correct language usage</p>	<p>Text is very difficult to read or there is little text and many language usage problems</p>	<p>Only a few words of text appear on each white paper segment</p>
<p>6.Content Priority:1 11 pts possible __pts awarded Score:</p>	<p>Excellent and correct information is provided throughout the paper for the design. The questions posed are addressed directly and with excellent supporting research and resources.</p>	<p>Very good and correct information is provided throughout the paper for the chosen topic(s). Some questions do not have a response, but those addressed are well supported</p>	<p>Some assertions are unsupported in presenting the topic(s). Few questions are addressed in the text but those that are, are well supported.</p>	<p>The chosen topic(s) or information are unsupported or supported by sources of uncertain or unknown quality. There may be plagiarized material or long attributed quotes.</p>
<p>7. Design Elements: 1. % proteins 2. % fats 3. % carbs Carbs by glycemic index: 4. High GI 5. Medium GI 6. Low GI Dietary fiber: 7. Soluble 8. Insoluble Micro-nutrients: 9. Vitamins 10. Minerals 11. Probiotics and prebiotic Food Intake intervals/fasting: 12. Intermittent</p>	<p>Excellent: All thirteen elements are addressed clearly and accurately in accordance with current knowledge</p>	<p>Very good: Some elements are absent, but most are present and explained well</p>	<p>Several elements are absent but the remainder are explained adequately</p>	<p>Most elements are absent and there are little or no explanations</p>

<p>13. Prolonged Priority:1 11 pts possible __ pts awarded Score:</p>				
<p>8. Page layout and format Priority:3 8 pts possible, __pts awarded Score</p>	<p>The page number requirement is met, the line spacing and font requirements are met.</p>	<p>One of the page number, line spacing, or font requirements are not met</p>	<p>Two or more of the page number, line spacing, or font requirements are not met</p>	<p>None of the page number, line spacing or font requirements are met</p>
<p>9.Creativity Priority:1 11 pts possible, __ pts awarded Score</p>	<p>The approach is highly original in management of the topic(s). including innovative food sources</p>	<p>The approach shows some originality in topic management and may make some reference to innovative food sources</p>	<p>The approach shows predictable but interesting management of topic(s), but makes minimal reference to food source innovations</p>	<p>The approach lacks originality in management of the topic(s). No reference is made to innovative food sources</p>
<p>10. Presentation Priority:2 9 pts possible, __ pts awarded Score</p>	<p>Paper is of an excellent quality for the Challenge age group.</p>	<p>Paper is of good quality for the Challenge age group.</p>	<p>Paper shows a low quality for the Challenge age group.</p>	<p>Paper is not of the quality for the Challenge age group.</p>
<p>11. Practicality of the Design Study for being conducted in the Analog Mars Mission Priority:1 11 pts possible,</p>	<p>The design study well supports the capabilities and limits of the analog mission setting.</p>	<p>The design study doesn't support one or more capabilities and limits of the analog mission setting.</p>	<p>The design study doesn't support most of the capabilities and limits of the analog mission setting.</p>	<p>The design study doesn't support any of the capabilities and limits of the analog mission setting.</p>

__ pts awarded Score:				
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NOTES AND ABBREVIATIONS:

*Note: Bonus points will be given to neatly hand drawn text and artwork

**Note: Design for the white paper format will not require more than meeting the minimum guidelines for page length, spacing and font

***Planned Diet in Long Duration Space flight = PDLDSF

For a periodical: R.N. Hall, "Power Rectifiers and transformers," Proc. IRE, Vol. 40, pp. 1515-1518, November 1952.

For a book: W.A. Edison, "Vacuum Tube Oscillators," John Wiley and Sons, Inc., New York, New York, pp. 170-171, 1948.

For an article: B. Lawrence, B.H. Weil, and M.H. Graham, "Making online search available in a industrial research environment," Journal of the American Society for Information Science, pp. 364-369, Nov- Dec. 1974.

For an online reference:

Jason Fung, Published on 3/5/17, YouTube Video "Jason Fung: "The Complete Guide to Fasting (& how to burn fat)". <https://youtu.be/n3dwizlGaRI>.