Biological Challenges in Long-Duration Spaceflight

Your team is tasked with identifying a biological issue—not structural or engineering-related—that could affect astronaut crews during long-term space missions (e.g., missions to Mars or extended stays on the Moon).

Project Requirements:

1. Issue Identification:
   Research and select a biological challenge that astronauts may face in space over extended periods.

2. Experimental Design or Monitoring Solution:
   Develop an experiment and/or monitoring method that could be used aboard a spacecraft or extraterrestrial habitat to study or mitigate the issue. Clearly explain the methodology and purpose.

3. Research and Sources:
   Support your proposal with at least two sources from NASA Johnson Space Center (JSC) publications provided to you on the Space Station Research Explorer database: Space Station Research Explorer on NASA.gov or the NASA Technical Reports Server. Be sure to cite these appropriately in your documentation.

4. Infographic Presentation:
   Create and present an infographic that clearly communicates:

   - The identified biological issue
   - Why it matters to astronaut health and performance
   - Your proposed experiment and/or monitoring approach
   - How your solution could improve outcomes on long-term missions

Your work should demonstrate scientific accuracy, creativity, and a clear understanding of the real-world challenges of human space exploration. Your team will likely do an extensive amount of research and data collection, but your final presentation must be in the form of a one page infographic.

Last updated: 10/2025

Rubric - Infographic - Apollo Division - 2026

2026 - infographic rubric - Apollo Division			Please submit all infographics to zoeportersac@gmail.com in PDF format by the deadline: January 31, 2026 at 11:59pm.			
design	5	4	3	2	1	0
color scheme font layout	* Layout is organized and uses consistent style * Color scheme has visual appeal and works with content * Fonts are legible and consistent	* Generally good layout * Has minor inconsistency or one distracting element *Color scheme clashes	*Layout could use improvement *Layout distracts from content *Two or more inconsistent elements *Hard to read fonts	*Layout is disorganized *Layout distracts from content *Color scheme is confusing	*No layout or scheme—just random elements, colors, and fonts	*not evident
content	5	4	3	2	1	0
terms facts quality of information - 2 cited sources quantity of information	*Appropriate terms, vocab, jargon defined and used *Data from good source *More than enough data to make claims *Data clearly demonstrate trend, claim	*One or two terms or jargon used incorrectly/ without explanation *Adequate amount of data *Data demonstrate trend, claim, etc *Data from good source	*Not enough terms, vocab, jargon *Data is sparse *Data might not not demonstrate the trend or claim *Data from good source	*Lacking in appropriate terminology *Not enough facts or data *Data is from poor or questionable source	*No real data or facts are present	*not evident
experimental design	5	4	3	2	1	0
presents a problem to be addressed experimental design or monitoring solution explained Experiment or monitoring variables are described	*experimental design is detailed, aligns with and addresses a valid problem. Experiment clearly shown and labeled.	*experimental design is missing a few variables or data, and does not completely align with the problem. Experiment shown.	*experimental design is missing many variables and data, only addressing part of the problem. Experimental setup not clear.	*experimental design is not testing the problem. Experimental setup not clear.	*experiment conducted but does not align with or address a problem	*not evident

experimental results	5	4	3	2	1	0
results or possible outcome presented	*easy to understand results and summary *explanation of future experiments or uses *Visualizations fit the data and the claim	*unclear summary *unclear results *Visualizations fit the data and the claim	*unclear summary, unclear results *Visualizations are not aligned to results or claim	*Design and visuals are at odds with the content or claims being made	*Design elements and visuals convey a meaning contrary to the intent	*not evident
summarized indicating future possibilities						
visualization matches results						

Comments:

Score _____/20

TEAM_____ 2026 Apollo Division Design

Presentation Rubric

Overall Presentation Section

Please rank each criterion from 1 (lowest) to 5 (highest)

Criteria	1	2	3	4	5
Team Collaboration and Preparation	Team appears unprepared; no collaboration evident	Minimal collaboration; disorganized presentation	Some collaboration; moderate preparation	Mostly cohesive and well-prepared	Team is highly collaborative; presentation is polished and seamless
Team Introduction and Mission Patch explanation	No introduction or unclear	Vague or incomplete introductions	Basic introduction of team members	Clear introductions with some context	Strong, confident introductions that engage the audience
Eye Contact, Volume, Speed	Reads from script; hard to hear/understand	Minimal eye contact; inconsistent delivery	Adequate voice and pace; occasional engagement	Good projection and pacing; engages audience	Excellent volume, pace, and natural eye contact throughout

Infographic Section

Please rank each criterion from 1 (lowest) to 5 (highest)

Criteria	1	2	3	4	5
Clear and Understandable Visuals	Infographic is unclear or confusing	Difficult to interpret; lacks organization	Some clarity; partially organized	Mostly clear and well-structured	Visually engaging, clear, and easy to understand at a glance

Science Section

Please rank each criterion from 1 (lowest) to 10 (highest)

Criteria	1–2	3–4	5–6	7–8	9–10
Experimental Design or Monitoring Method	No clear design; lacks purpose	Weak design; lacks logic or control	Adequate design with basic structure	Solid design with thoughtful controls	Excellent, well-planned, and creative design
Experimental Results or Outline of Data Collected	Results are missing or unrelated	Unclear or poorly presented results	Results are basic but relevant	Results are well-presented and logical	Results are thorough, well-documented, and strongly support conclusions
Accurate Science Content, Sources Cited	Major scientific errors	Many inaccuracies or misconceptions	Mostly accurate with minor errors	Accurate with good explanations	Scientifically sound with clear, detailed understanding shown

Judge Notes:

Overall Score: _____ / 50