

Mission Brief

Welcome Space Engineers,

Humanity is preparing for its next giant leap – building a home in space. But living beyond Earth is no easy task. Space has no air to breathe, extreme temperatures, and no grocery stores or hardware shops when something breaks!

Your challenge is to imagine how humans can **live and work sustainably in orbit and on the Moon**.

That means creating solutions that:

- Keep astronauts **safe, healthy, and comfortable**
- Use **resources wisely** (reuse, recycle, reduce waste) and how are resources acquired
- Depend on **safe, renewable energy** such as solar, or **sustainable energy** such as nuclear
- Can **last a long time** and adapt to new needs
- Are within the **realm of possibility** with real-world or near future technology

In this mission, your team will:

1. Identify a **problem** astronauts face living beyond Earth.
2. Create a **solution** (structure, reusable rocket, new fuel, resource acquisition, temperature controls, system, or tool) that addresses it.
3. Explain **how it works** in simple terms.
4. Show how your idea is **sustainable** using the Sustainability Snapshot.

Remember: You are not just inventors – **you are pioneers shaping the future of space exploration**. Think big, be bold, and design like the future depends on it... because it does!

Team-Created Written Overview

MISSION NAME & TEAM MEMBERS

Mission Name:

Team Members:

Teacher/Guardian Name:

THE PROBLEM

What challenge are you solving for humans living in space?

THE SOLUTION

What is your idea?

Choose a name or phrase that is easy to remember and reflects the purpose of your solution.

HOW IT WORKS

Simple explanation of how it functions:

Remember your STEM Component and Pitch Video can help reinforce this explanation.

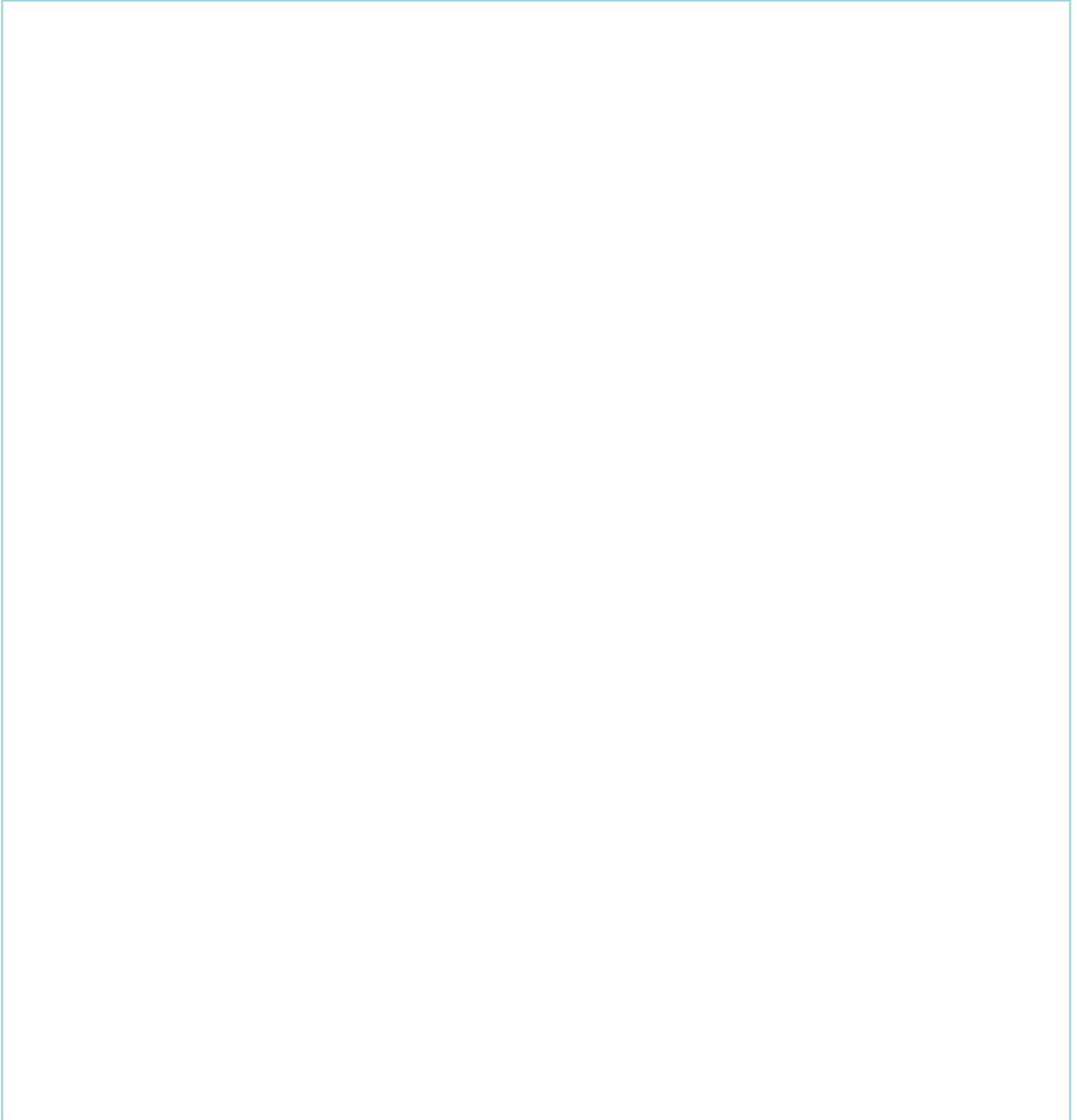
SUSTAINABILITY SNAPSHOT

Fill out the table below to show how your idea supports life beyond Earth in a safe and sustainable way.

Category	How Your Idea Helps
<p>Reuse or Recycling: How can materials, water, or air be reused instead of wasted?</p>	
<p>Safe Energy Use: How does your idea use renewable or sustainable energy?</p>	
<p>Minimal Waste: How will waste be reduced, reused, or turned into something useful?</p>	
<p>Human Comfort & Safety: How will your design keep astronauts safe, healthy, and comfortable?</p>	
<p>Long-term Use: Can your idea last for years or be repaired and adapted as needed? What happens to your solution when the mission is complete?</p>	

NOTES & SKETCHES (OPTIONAL)

Use this space for quick drawings, diagrams, or extra notes:

A large, empty rectangular box with a thin blue border, intended for students to provide quick drawings, diagrams, or extra notes related to their project.

When finished, save this document as a PDF and ensure that the file size does not exceed four pages before submitting.