

# MARS INNOVATION CHALLENGE



# Table of Contents



01

Introduction to the Challenge

02

Session 1: Understanding Mars and the SDGs

03

Session 2: Problem-Solving and Focus Areas

04

Session 3: Research and Concept Design

05

Session 4: Prototyping and Ethics

06

Session 5: Presentation and Reflection

07

Notes Section

# 1. Introduction to the Challenge

Welcome to the Mars Innovation Challenge 2025! This workbook will guide you through the process of developing innovative solutions to help humans thrive on Mars. You will learn about Martian challenges, explore the connections to Earth's sustainability through the United Nations Sustainable Development Goals (SDGs), and consider the long-term impacts of your designs using the 7 Generations Principle.

Focus Areas:

1. Martian Planetary Protection
2. Human Medicine & Genetic Modifications
3. Martian Sample Integrity

Let's start your mission to design for Mars and beyond!



## 2. Session 1: Understanding Mars and the SDGs

### Objective:

- Learn about the challenges of living on Mars.
- Understand the United Nations Sustainable Development Goals (SDGs).
- Explore the 7 Generations Principle.

### Activity:

Watch a video or read an article about the challenges of living on Mars. Afterward, answer the following questions:

1. What are the main challenges humans face on Mars?

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2. How do the SDGs connect to life on Mars and Earth?

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3. Why is it important to consider the 7 Generations Principle?

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### 3. Session 2: Problem-Solving and Focus Areas

#### Objective:

- Choose a focus area for your project.
- Brainstorm potential solutions for Mars challenges.

#### Activity:

Choose your focus area by circling one of the following:

1. Martian Planetary Protection
2. Human Medicine & Genetic Modifications
3. Martian Sample Integrity

Brainstorm ideas for your project:

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## 4. Session 3: Research and Concept Design

Objective:

- Research your focus area.
- Develop an initial concept for your solution.

Research Notes:

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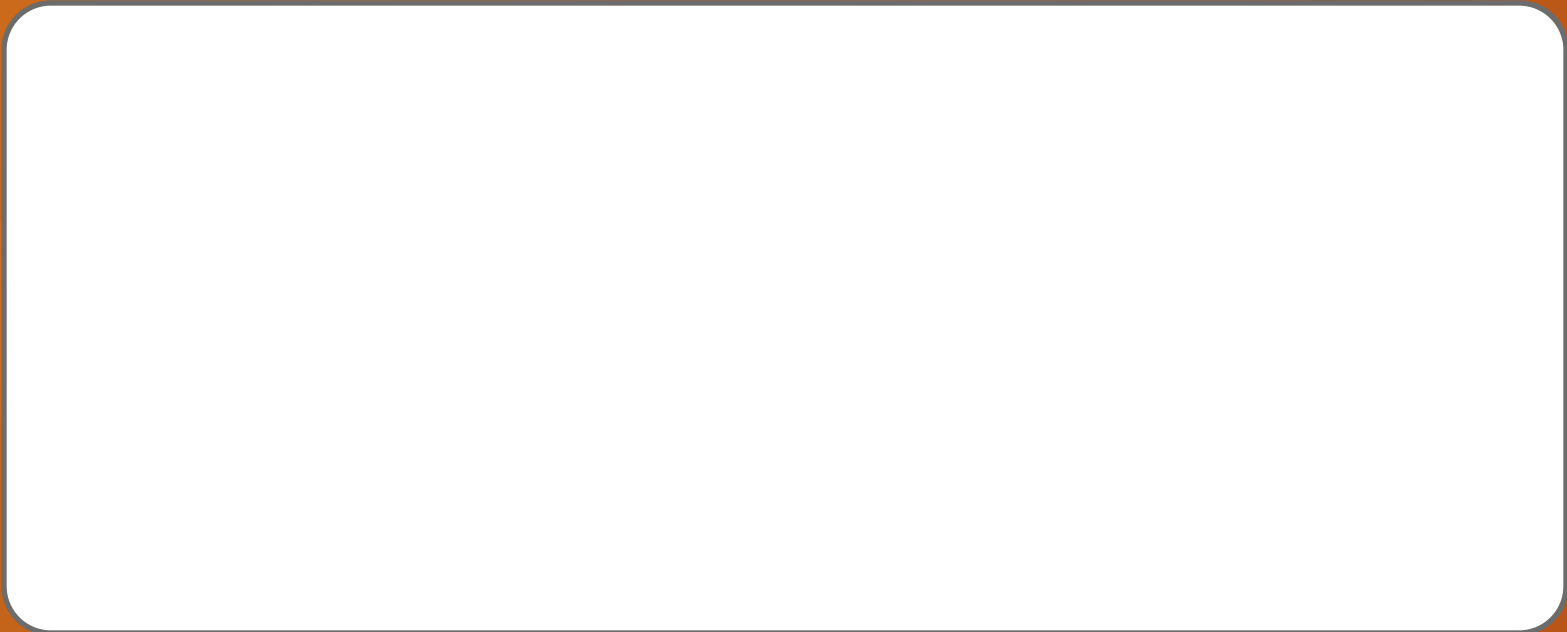
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Sketch or describe your concept below:

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## 5. Session 4: Prototyping and Ethics

### Objective:

- Build a prototype of your solution.
- Reflect on the ethics and long-term impacts of your design.



### Prototype Description:

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### How does your design consider the 7 Generations Principle?

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## 6. Session 5: Presentation and Reflection

### Objective:

- Present your solution to an audience.
- Reflect on the project and your learning experience.

### Presentation Notes:

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### Reflection Questions:

1. What was the most challenging part of the project?

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2. What did you learn about designing for sustainability?

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3. How will you apply the lessons learned to future projects?

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## 7. Notes Section

Use this space for additional notes or sketches: