

Designing a Mars Colony

Name:

Date:

INQUIRY

You have 100 people, unlimited budget, and 10 cargo missions. What do you send first?

Discuss with your partner. Write your initial ideas below:

Key Vocabulary

Term	Definition
Hydroponics	Growing plants without soil, using nutrient water.
Bioregenerative	A life support system that recycles air, water, and waste biologically.
Modular	Built from separate units that can be connected.

Part A — Priorities

1. Rank these in order of priority for the first cargo mission to Mars: (a) food supplies (b) solar panels (c) habitat modules (d) medical equipment (e) communication systems (f) water extraction tools. Justify your top 3. [5 marks]

Part B — Food Production

2. Explain how hydroponics works. Why is it better than soil farming on Mars? What crops would you grow and why? [4 marks]

Part C — Colony Design

3. Draw a labelled diagram of your Mars colony. Include: habitat, greenhouse, power source, water system, radiation protection. Annotate with materials and dimensions. [6 marks]