Introduction to Space Colonies Assessment

Student Name: _____	**Class:** _____
Student ID: _____	**Date:** {{DATE}}

Assessment Details

Duration: 2 hours	**Total Marks:** 100
Topics Covered:	• Introduction to Space Colonies • Components of a Space Colony • Challenges of Establishing and Maintaining a Space Colony

Instructions to Students:

1. Read all questions carefully before attempting.
2. Show all working out - marks are awarded for method.
3. Calculator use is permitted except where stated otherwise.
4. Write your answers in the spaces provided.
5. If you need more space, use the additional pages at the end.
6. Time management is crucial - allocate approximately 1 minute per mark.

Introduction and Learning Objectives

Welcome to the Introduction to Space Colonies assessment! This assessment is designed to evaluate your understanding of space colonies, their components, and the challenges associated with establishing and maintaining them.

Learning Objectives:

- To understand the basic concept of a space colony and its purpose
- To describe the essential components of a space colony, including living quarters, life support systems, and energy sources
- To explain the challenges of establishing and maintaining a space colony

Foundation Tier Questions

Question 1 [2 marks]

What is the primary purpose of a space colony?

A) To explore new planets

B) To establish a new home for humans

C) To conduct scientific research

Question 2 [2 marks]

What is the most essential component of a space colony?

A) Living quarters

B) Life support systems

C) Energy sources

Question 3 [4 marks]

Describe the basic concept of a space colony.

Question 4 [4 marks]

What are the three essential components of a space colony?

Core Tier Questions

Question 5 **[2 marks]**

What is the main challenge of establishing a space colony?

A) Limited resources

B) Harsh environment

C) Distance from Earth

Question 6 **[2 marks]**

What type of energy source is most suitable for a space colony?

A) Solar panels

B) Nuclear reactors

C) Fossil fuels

Question 7 **[6 marks]**

Explain the importance of life support systems in a space colony.

Question 8 **[6 marks]**

Describe the challenges of maintaining a space colony.

Extension Tier Questions

Question 9 **[15 marks]**

Discuss the advantages and disadvantages of establishing a space colony on Mars.

Question 10 **[10 marks]**

Read the scenario about a space colony on the moon and answer the following questions:

a) What challenges did the colonists face?

b) How did they overcome these challenges?

Project-Based Tasks

Foundation Tier [5 marks]

Design a simple space colony, including living quarters, life support systems, and energy sources.

Core Tier [10 marks]

Design a space colony, including living quarters, life support systems, energy sources, and a transportation system.

Extension Tier [20 marks]

Design a sustainable space colony, including renewable energy sources, recycling systems, and a self-sufficient food supply.

Marking Guide

Foundation Tier

- Multiple-choice questions: 1 mark each
- Short-answer questions: 2 marks each
- Project-based task: 5 marks
- Total: 15 marks

Core Tier

- Multiple-choice questions: 1 mark each
- Short-answer questions: 3 marks each
- Project-based task: 10 marks
- Total: 25 marks

Extension Tier

- Essay question: 15 marks
- Case study: 10 marks
- Project-based task: 20 marks
- Total: 45 marks

Differentiation and Support

For pupils with special educational needs:

- Provide extra time to complete tasks
- Offer one-to-one support
- Use assistive technology, such as text-to-speech software

For English language learners:

- Provide bilingual resources and support
- Offer visual aids and diagrams to support understanding
- Encourage pupils to use dictionaries and thesauruses

For gifted and talented pupils:

- Provide additional challenges and extensions
- Encourage pupils to research and present on a topic related to space colonies
- Offer opportunities for pupils to design and create their own space colony models