Unit E Project – FOR MARKS

Project – The Future of Space Exploration

	In this project, you choose and describe a course of action to save the human species. You are required to submit this project to your teacher for marks. Very carefully, read the whole project and how to do it. Be sure to read the requirements and rubric, they explain the expectations for this project and how it will be marked. Click here if you need tips on how to create a good project!

Situation

At some point in the future, pollution and climate change threaten to make the Earth uninhabitable. Living conditions have worsened to the point that humans can no longer live safely on Earth unless drastic action is taken.

The United Nations (UN) decides to convene a panel responsible for deciding the best course of action for everyone on Earth. Experts have been asked to give the panel a recommendation. You are one of the experts that will be giving advice to the panel.

Should humans leave Earth and colonize another planet or should humans stay on Earth and use technology to improve our living conditions? Or, should humans build habitable space stations or shuttles?

Project Task

Choose a course of action to save the human species. Create a presentation for the UN panel that describes and explains how your proposed course of action will ensure that humans continue to have clean water, plentiful food, breathable air, sufficient waste disposal, and a comfortable temperature.

Convincing the UN panel will require an understanding of space, current technologies, and, possibly, scientific principles that can be applied to new technologies.

Before you begin designing your presentation, ask yourself these questions:

- What do humans need to stay alive?
- What benefits are involved in going to space versus staying on Earth?
- What challenges are involved in going to space versus staying on Earth?

Method

1. Read through all the following proposals carefully. They all describe possible courses of actions that humans can take to save the human species.

    A. Stay on Earth and work to improve living conditions.
    How can we use technologies designed for space to ensure the population continues to have clean water, plentiful food, breathable air, sufficient waste disposal, and a comfortable temperature? Would we need to construct a new environment on Earth to protect ourselves?

    B. **Move to a planet or celestial object already known to us.**
    Some planets and celestial objects are similar enough to Earth to be made habitable. How would we get there? Considering the environment of the planet or celestial object, what would we need to take with us? How can we ensure the population continues to have clean water, plentiful food, breathable air, sufficient waste disposal, and a comfortable temperature?

    C. **Construct space shuttles or International Space Stations that can create a habitat for humans in space.**
    Could we construct an artificial environment that orbits another celestial body or travels through space? How can we use technologies designed for space to ensure the population continues to have clean water, plentiful food, breathable air, sufficient waste disposal, and a comfortable temperature?

    D. **A plan of your choice**
    Do you have another idea? Use what you know about space, scientific principles, and technology to describe your idea. How can we use technologies designed for space to ensure the population continues to have clean water, plentiful food, breathable air, sufficient waste disposal, and a comfortable temperature?

2. Which course of action do you think humans should take? Select **one** of the proposals from Step 1 as your position, for your presentation.

3. Choose the way you would like to communicate your presentation. Here are some ideas from which you can choose:

    - Draw a labelled diagram of your proposed human habitat. Draw with pencil, paper, and coloured pencils.
    - Design or use a computer drawing program such as Adobe Photoshop or Gimp, to create a labelled diagram of your proposed human habitat.
    - Create a Powerpoint and use it to create a screencast video, recording your voice over it.
    - Create a website explaining your proposed human habitat, including pictures.
    - Build a model of your proposed human habitat using recycled objects around your house. Then, photograph or video various aspects of your model to share with your teacher.
    - Use other creative ideas, but check with your teacher first!

Requirements

You must include the following **five** components about your proposed course of action to provide a safe habitat for humans.

- You can provide written answers to these requirements, or you can include the answers as labels if you produce a drawing of your design.
- Another option is to address these requirements by recording yourself (and your model or drawings) on video or make an audio recording.

1. Visually illustrate or construct a model for the habitat, supported by your presentation.

2. Include a general description of the location of your solution and the people involved.

    - Justify your choices. (Why here? Why these people?)

3. Identify the challenges that must be met in sustaining life in the environment.

- Describe how the basic needs of people will be met, including:
  - Ensuring a clean water source
  - Ensuring ample food supply
  - Ensuring ample oxygen supply
  - Ensuring a comfortable temperature for the population
- Describe how other necessities will be addressed, including:
  - Communication within the environment or with other habitats
  - Fuel and/or energy to power any necessary technologies

4. Describe how **one** of the following space technologies can contribute to the success of your proposed solution:

- Hubble Telescope
- International Space Station
- Mars Rover
- Dextre
- Global Positioning System
- Optical telescopes
- Space Probes
- Radio interferometry

5. Defend your proposed course of action using **two** of the following perspectives. Describe the reasons your proposal will be a success from these perspectives.

- Environmental
- Humanitarian
- Economic
- Political
- Historical
- Technological
- Cultural
- Social

Rubric

This project is worth 32 marks. Click here to view the rubric – it explains how your work will be marked. It also explains all the things you need to include. Read the rubric very carefully before starting your work.

(*The rubric is on the next page.*)

The Future of Space Exploration
32 marks

CRITERIA	PERFORMANCE				
	NOT SUBMITTED	**NOT OK**	**OK**	**GOOD**	**EXCELLENT**
	Not Submitted 0 marks	**Does not meet criteria 1 mark**	**Minimally meets criteria 2 marks**	**Fully meets criteria 3 marks**	**Exceeds criteria 4 marks**
Visual diagram or illustration of model provides clear insight into the proposed course of action	Not Submitted	Model or illustrations are ineffective and irrelevant.	Model or illustrations are somewhat clear and reasonable.	Model or illustrations are effective and focused; some supporting details and examples.are provided.	Model or illustrations are innovative and perceptive; several supporting details and examples are provided.
Presentation justifies choices of location and people	Not Submitted	Justification is vague and ineffective.	Justification is feasible and reasonable.	Justification is effective and logical.	Justification is precise and insightful.
Presentation explains how basic human needs will be met in the proposed course of action.	Not Submitted	System for meeting basic needs is vaguely described, flawed, and/or irrelevant; details lacking.	System for meeting basic needs is adequately described and simplistic; details lacking.	System for meeting basic needs is clearly described, logical, and systematic ; some supporting details are provided.	System for meeting basic needs is comprehensively described, accurate, and purposeful; many supporting details provided.
Presentation explains how needs for communication and fuel/energy will be addressed	Not Submitted	Proposed solution is limited and ineffective.	Proposed solution is viable and workable.	Proposed solution is practical and effective.	Proposed solution is efficient and innovative.
Presentation identifies how the chosen space technology will contribute to the proposed solution.	Not Submitted	Technology and its possible use are described inadequately.	Technology and its possible use are described simplistically.	Technology and its possible use are described thoughtfully.	Technology and its possible use are described accurately in detail.
Selected perspectives support the proposed solution	Not Submitted	Selected perspectives provide tenuous and inconclusive support for proposal.	Selected perspectives provide obvious and plausible support for proposal.	Selected perspectives provide meaningful and credible support for proposal.	Selected perspectives provide compelling and persuasive support for proposal.
Creativity	Not Submitted	Presentation is very simple and lacks imagination.	Presentation is very simple but shows some imagination.	Presentation has a few details and shows some imagination.	Presentation has many details and shows a great deal of imagination.
Communication	Not Submitted	Information is not clearly communicated; details lacking.	Information is partly communicated; some details lacking or confusing.	Information is partly communicated; many details included.	Information is clearly communicated, with much detail.

Submitting Your Work

- If you print your work and/or do pencil drawing(s) on another piece of paper, you must scan your work to submit it.
- If you have prepared any other electronic images or documents for this assessment, you must submit them.
- If you have used an Internet location where your work is located, you must submit the URL so your teacher can view your work.

When you are ready to submit your completed project, return to the project page in the online course and see the instructions at the bottom of the page.

Note that when you submit anything to your teacher, **PLEASE INCLUDE YOUR NAME IN THE DOCUMENT TITLE**. For example, you might title it something like this:

UnitE_project_Jenny_Smith.doc