Going to Mars

For decades, humans have talked about inhabiting Mars. Do you think it is likely this will happen someday? It sounds like a science fiction movie, but it is an idea that scientists are studying. The current Artemis missions have the goal of returning to the moon and preparing for going to Mas.

Advantages of Mars

Mars is not the only planet in our solar system. Why would scientists choose it as the most realistic option for humans to live on? There are advantages when compared to other planets.

We know humans will need water to survive. It is necessary for drinking, growing food, producing oxygen, and even making fuel for rockets. While there are no bodies of water and only very small amounts of liquid water can be found, there are large amounts of ice at and under the surface. This is necessary because transporting water to the planet would be expensive and difficult.

When we travel to new places, it can be difficult for our bodies to adjust to a new schedule. Thankfully, humans traveling to Mars would only have a small adjustment to make. A day on Mars is only about 40 minutes longer than a day on earth. Humans would be able to maintain a work and sleep schedule they are accustomed to.

Along with water, plants need sunlight to grow. Although a little assistance might be needed from greenhouses and artificial lighting, sunlight will be available for the process of growing foods.

Mars seems far away but still is the closest habitable planet to earth. The journey to the planet is approximately 140 million miles and will take six to nine months to reach. About every 26 months, Mars and earth are positioned in a way that allows the most energy-efficient path to the Red Planet.

Challenges of Mars

Transforming Mars into a place where humans can live and work will not be easy. There are many obstacles scientists will need to overcome.

The atmosphere on Mars is about 1% as dense as the earth's atmosphere. In addition, the air is mostly carbon dioxide. Humans will not be able to breathe on their own. The atmosphere offers almost no protection from the radiation the sun gives off.

Because the atmosphere is so thin, it cannot trap heat well. This means that Mars is very cold. The average temperature a space traveler might face is around -80 degree Fahrenheit. There can be a big swing between the highs and lows as the sun rises and sets.

The soil will be toxic to humans. It contains perchlorates, which are harmful to humans, even in small amounts. They are natural oxidizers which means that they will cause equipment to corrode. On the other hand, they may be able to act as a source of oxygen. Scientists believe that the process of removing the perchlorates from the soil could require little energy, be environmentally friendly, and be a good way to obtain oxygen.

While there will be no thunderstorms or hurricanes humans will need shelter from, dust storms do pose a hazard. Planet-wide dust storms have been known to last for weeks or months. They can block the sunlight, damage equipment, and harm astronauts.

Overcoming the challenges on Mars

First, humans need a safe habitat to live in. The enclosure needs to protect explorers from the thin atmosphere, extreme temperatures, and radiation. There are materials on Mars that can be used to build housing such as the soil. Other options include sending premade habitats from earth. These might be prefabricated modules or inflatable.

Once humans have a place that offers protection from the environment, they will need life support systems. These must generate oxygen, remove carbon dioxide, and then recycle air and water. To make living on Mars realistic, scientists must figure out how to continually provide these necessities.

It will be imperative to develop ways for those on Mars to grow their own food. Greenhouses or indoor farms are options that are being explored. Scientists are researching the possibility of developing crops that can tolerate the soil on Mars along with the climate.

All of these ideas require power. How will everyday life be powered? Some ideas that are being considered are solar power, nuclear power, and geothermal energy.

Before the first humans can consider colonizing Mars, doctors must also be consulted. They will consider how physical health will be impacted. Humans on Mars will be exposed to more radiation, less gravity, and a new diet. Another concern is mental health. How will living in a confined space far from earth impact people? Will those who are chosen to go never see their families again?

Will humans someday visit Mars? Will others make Mars their home? What do you think?

Name: _____ Due Date: _____

Mars Response

Should we go to Mars? What is your opinion?

1. Share what you believe – this is your thesis statement!
2. Next, give three to four pieces of evidence from the reading that support your thesis.
3. You will give a one sentence counterargument. This tells the reader the opposing viewpoint and gives one piece of evidence in support of it.

   For example: Others believe that we _____ because _____.
4. Finally, restate your thesis.

When you are finished, you will have a 6 to 8 sentence paragraph that shares your viewpoint.

Checklist:

- ☐ Thesis (an introduction that shares your viewpoint)
- ☐ Evidence (three to four sentences that include evidence from the text)
- ☐ Counterargument (one sentence that shares the other side)
- ☐ Conclusion (restate your thesis)
- ☐ My paragraph is 6 to 8 sentences long.
- ☐ I have read my paragraph and my writing makes sense.
- ☐ Words from the text are spelled correctly.
- ☐ My sentences begin with a capital letter.
- ☐ My sentences end with a punctuation mark.

This will be a writing and a science grade!