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Topic: Colonization of Mars

General Purpose: To inform

Specific Purpose: To educate my audience about Mars and how humans will colonize it.

Thesis: Humans plan on colonizing Mars in the near future

Introduction

- I. We've all heard the phrases "Space: The final frontier" and "to boldly go where no man has gone before."
 - A. These phrases are just part of a fictional [Startrek] universe, but seem to be describing our reality more and more each day.
- II. I am credible to speak because I have thoroughly researched this topic.
- III. This speech will inform you about Mars and how humans will colonize it.
 - A. To begin, I will share some information about Mars, itself.
 - B. Next, I will discuss how humans will get there.
 - C. Lastly, I will explain the future of humans on Mars.

Transition: To fully understand colonization of Mars, one must be educated about Mars, itself.

Body

- I. To begin, I will share some information about the planet.
 - A. Mars is the 4th planet from the Sun – Earth's closest neighbor.
 1. It is about ½ the size of Earth with about a 1/3 the gravity.
 2. A day on Mars is about 24 hours and 40 minutes.
 3. And it is within our Sun's habitable zone (area around a star where liquid water and possibly life could exist).
 - B. One of the most interesting aspects about Mars is that it's believed to have once been very similar to Earth and was suitable for sustaining life.
 1. (*According to "The Solar System in Close Up" by John Wilkinson*) the Mars rover, Curiosity, found that water once existed on the surface as flowing rivers and even lakes (*Wilkinson, 2016*).

1. And that there is water currently on Mars in the form of ice – mostly at its polar ice caps and permafrost.
 2. (*Wilkinson also claims*) life could exist under and within the ice because microbial life has been found in similar conditions in Antarctica (*Wilkinson, 2016*).
2. Mars also used to have an atmosphere, however nearly all of it has been stripped away by solar wind due to Mars' very weak magnetic field.

Transition: Now that I have informed you about Mars I will describe how humans will get to Mars.

- II. The next point I will speak about is how humans will arrive at Mars. There are 2 major, current projects proposed for doing this.
- A. The first being under NASA's Space Launch System (SLS).
1. (*According to the paper "Scientific and Human Exploration Opportunities Enabled by the Space Launch System"*) SLS will be the most powerful rocket in the world once built (previously the Saturn V) – providing up to 9.2 million lbs. of thrust (*Donahue et al. 2015*).
 2. The SLS will be the first rocket under the United States to carry humans to space since the Space Shuttle Program which ended in 2011.
 1. It will carry the Orion Capsule which can hold a crew of 2-6 people.
 3. NASA plans on sending a manned mission to orbit Mars with the SLS by the mid 2030s and a Mars landing thereafter.
- B. The second project being SpaceX's Interplanetary Transport System (ITS).
1. (*As revealed by Elon Musk, founder of SpaceX, at the International Astronautical Congress last Tuesday [September 27, 2016]*) the ITS would be even stronger than the Saturn V and SLS with 29 million lbs. of thrust (*Musk, 2016*).
 1. This rocket would carry a(n unnamed) spaceship atop the enormous booster that could carry up to 100 people at a time.

- a. *(Musk also stated)* that this spaceship would be “fun” with restaurants and zero-g games *(Musk, 2016)*.
2. It could reportedly reach Mars in roughly 3-5 months, substantially faster than current technology, at about 8 months.
3. SpaceX has plans to put humans on the surface of Mars by 2024.

Transition: Finally, since we now know how people will reach Mars, what will the future of humans on Mars be?

III. Finally, I will discuss the plans for humans once we reach Mars - again, there are 2 different plans under NASA and SpaceX.

A. NASA’s proposal first.

1. Who has seen “The Martian?” – the plan is very similar to that.
2. The first humans on Mars under NASA would most likely not be permanent residents.
 1. *(As claimed in the paper “NASA’s Journey to Mars – Pioneering Next Steps in Space Exploration”)* materials needed to support human presence on Mars such as in-space habitats and supplies would need to last for round-trip missions of up to 1,100 days *(NASA, 2015)*.
 - a. These trips would be ultimately science – based rather than recreational.
 - i. NASA hopes to answer the question: Is or was there ever life on Mars?

B. Second, SpaceX’s proposal.

1. Unlike NASA, SpaceX wants to set up a permanent colony on Mars.
 1. *(As stated by Elon Musk)* he wants humans to become a “multi-planet species” *(Musk, 2016)*.
 - a. He plans to eventually have a colony of 1 million people which, *(according to Musk)*, would take between 40-100 years *(Musk, 2016)*.

2. Again, in contrast to NASA, SpaceX would not be totally focused on science and research.
 1. However, in the very distant future SpaceX may lead efforts in terraforming Mars to become a human-friendly planet.

Transition: To conclude, let's review what I have shared with you.

Conclusion

- I. I have informed you about Mars and how humans will colonize it.
 - A. I have educated you about Mars, itself.
 - B. Explained how humans will reach Mars.
 - C. And the future of humans on Mars.
- II. I'll leave you to ponder this: Would you ever go to Mars? Because one day you may just be able to.

References

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- Musk, E. (2016, September 27). Making Humans a Multiplanetary Species. Retrieved October 02, 2016, from https://www.youtube.com/watch?v=H7Uyfqi_TE8
- United States., National Aeronautics and Space Administration,. (n.d.). *NASA's journey to Mars: Pioneering next steps in space exploration*. Retrieved October 2, 2016, from https://www.nasa.gov/sites/default/files/atoms/files/journey-to-mars-next-steps-20151008_508.pdf.
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