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Space Exploration: Value and Impact on Society, Science, and Technology

Space exploration is crucial for our understanding of the solar system, the workings of celestial bodies, and the advancement of our knowledge of the cosmos. Despite this, some people view it as being useless. However, I strongly disagree with this perspective because space exploration contributes significantly to our comprehension of the cosmos and provides valuable insights. Thanks to space travel and research, we have gained a wealth of knowledge about the universe. [1]Modern technology and spacecraft have enabled us to make numerous new discoveries about planets, moons, stars, galaxies, and other celestial bodies. [2]The social influence of NASA goes well beyond space exploration. The agency's ground-breaking innovations have transformed a variety of industries and fundamentally altered how we go about our everyday lives. [3]Space exploration has significantly influenced global collaboration and communication, in addition to deepening our understanding of the cosmos. This is shown by the multiple worldwide coalitions that have been formed to advance space exploration despite political and cultural barriers. To better understand our universe and take advantage of the many possibilities it presents, we must continue to support space exploration.

Public and scientific interest in space exploration has always been substantial, as it has played a crucial role in advancing our understanding of the universe. The discovery of new planets, moons, and galaxies as a result of space exploration has stimulated scientific research

[1] 1st supporting evidence
[2] 2nd supporting evidence
[3] 3rd supporting evidence

and investigation. NASA, the preeminent space agency, acknowledges the immense value of space exploration and has been at the vanguard of numerous innovating missions. Mariner 4, the first mission to Mars, was launched in 1965, resulting in the first close-up images of the planet, which stimulated new scientific inquiry and a deeper comprehension of the universe. The 2015 discovery of the Earth-like planet Kepler-438b by the Kepler spacecraft led scientists to postulate that life may exist on other planets. This discovery has prompted additional research, which has increased our understanding of the universe. Exploration of space has significantly advanced our knowledge of the universe, cast light on its origins, and advanced space travel technology.

Beyond space exploration, NASA makes contributions to society. The agency has made important contributions to several STEM sectors via the creation of discoveries and technology that are now commonly utilized in our everyday lives. The orbiting International Space Station (ISS) offers a superb vantage point for viewing the globe. It makes it possible to create novel research tools, like the ECOSTRESS experiment, by examining the thermal infrared emissions of the Earth's surface. This study may advance our understanding of the world by allowing us to better understand how plants react to water stress for agriculture and food security as well as how various locations may adapt to upcoming climate change. Additionally, NASA has adjusted its water filtration technology—originally designed for space—to support disaster relief operations and underprivileged nations. In addition, the quality of life for amputees has been enhanced through the creation of sophisticated prosthetic limbs employing NASA robotics technology. Last but not least, the Global Positioning System (GPS), made possible by NASA satellites, is now widely utilized for navigation and location-based services. Its creation was made feasible by NASA's collaboration with Black & Decker on the development of cordless power tools. There have been important advances in technology, health, agriculture, and environmental research as

the benefits of the space exploration projects carried out by many organizations. These developments have increased not just our comprehension of the cosmos, but also the quality of life for individuals all around the planet.

International collaboration and communication have been made easier because of space exploration. Nations have come together, despite political and cultural barriers, to progress science via space exploration. Political alliances have been formed and substantial strides in space exploration have been made thanks to collaboration. A turning point in space research and a sign of goodwill between the two nations during the Cold War was the Apollo-Soyuz Test Project, carried out in 1975 by the US and the USSR. Cooperation between the United States and Russia on the International Space Station has been an essential component of their relationship since the conclusion of the Cold War. International collaboration in solving global concerns like disaster management and climate change has also expanded as a result of space exploration. Global cohesiveness and collaboration have been fostered through space exploration, leading to advances in science, world peace, and understanding.

The exploration of space is not a waste of either time or money, which brings us to our last point. It has had a huge impact on technological advancement, increased our understanding of the cosmos, and transformed various industries, including agriculture, healthcare, and emergency management, among others. Exploration of space has also played a role in the formation of political coalitions and the resolution of global issues, both of which have been made easier as a result of this endeavor. It is essential for the development of science, worldwide peace, and global comprehension that space exploration be continued forever. The benefits of space exploration must be greater than the expenditures, and it is essential that it be pursued

indefinitely. As our exploration of space continues, not only do we discover new things about the universe, but also about ourselves and how we fit into the greater scheme of things.

Work Cited:

Canadian Space Agency. “Benefits of Space Exploration.” Canadian Space Agency, / Government Du Canada, 11 Dec. 2020, https://www.asc-csa.gc.ca/eng/about/everyday-benefits-of-space-exploration/.

Dunbar, Brian. “Global Positioning System History.” NASA, NASA, 5 May 2015, https://www.nasa.gov/directorates/heo/scan/communications/policy/GPS_History.html

Guzman, Ana. “15 Ways the ISS Benefits Humanity Back on Earth.” NASA, 20 July 2022,https://www.nasa.gov/mission_pages/station/research/benefits/15-ways-iss-benefits-humanity-back-on-earth

“In Depth.” NASA, NASA, 11 Aug. 2019, https://solarsystem.nasa.gov/missions/mariner-04/in-depth/

Johnson, Michael. “NASA Tech Supports Worldwide Water Purification Efforts.” NASA, NASA, 7 Mar. 2019, https://www.nasa.gov/mission_pages/station/research/news/b4h-3rd/it-advanced-nasa-water-purification/

Johnson, Michele. “NASA's Kepler Mission Discovers Bigger, Older Cousin to Earth.” NASA, NASA, 23 July 2015, https://www.nasa.gov/press-release/nasa-kepler-mission-discovers-bigger-older-cousin-to-earth

Loff, Sarah. “Apollo-Soyuz Test Project Overview.” NASA, NASA, 16 Apr. 2015, https://www.nasa.gov/apollo-soyuz/overview

Northon, Karen. “NASA's Kepler Uncovers More Small Worlds in Habitable Zones.” NASA, NASA, 19 Mar. 2015, https://www.nasa.gov/press/2015/january/nasa-s-kepler-marks-1000th-exoplanet-discovery-uncovers-more-small-worlds-in