

While these Post Activity Discussion Questions are meant to be open-ended and inspire creative and critical thinking, the answers below may assist and support you, the teacher, throughout the classroom discussion.

What do you think about the long pause of 50 years in returning to the Moon?

From a historical perspective, there were several reasons for the long pause between the Apollo program and the recent Artemis program. Key factors include:

- A shift in priorities for space exploration and funding, including a shift in emphasis and funding to the space shuttle program and International Space Station.
- Advancements in technology, like reusable spacecraft, the expansion of robotic missions, and the development of new scientific instruments have all been necessary before returning to the Moon.
- The Artemis program now has a different approach, with a sustainable goal and exploration rather than a race to get there first and come back. It's a long-term goal for a human lunar return with a strong focus on utilizing resources from the Moon to support eventual missions to Mars and deeper into space.

Imagine you are the leader of a country, like the President of the United States. How would you respond if another government/nation is beating yours in science and technology? Why does your response matter?

As leader of a country, if another nation were outpacing us in science and technology, I would first take a comprehensive assessment of the situation to understand the reasons for their advancement. I would then craft a strategy to invest in and support scientific research and technological development in the U.S., with a focus on building up our own capabilities in key science areas.

Investment in scientific research and development not only creates jobs, but it leads to better technology, medicine, and other tangible benefits for the public. Investing in these endeavors will help my country maintain its leadership role in the international community, help to address global issues, and promote peace and stability.

We must attract and retain the best talent in science and technology and diversify the workforce, which is important for maintaining our technological leadership. We need to ensure that all Americans, regardless of background, can participate and succeed in STEM.

My response would matter because science and technology are important drivers of economic growth and national security. As the leader, it is my duty to ensure that the country is at the forefront of these fields so that we can maintain our competitiveness in the global economy and improve the lives of our citizens.

What are the advantages of using the Moon as a starting point for missions to Mars?

While the Moon and Mars are very different destinations, the knowledge and capabilities gained from going to the Moon can be used to pave the way for a mission to Mars, making it a smart and logical step in humanity's ongoing journey to explore the solar system for many reasons:

- The Moon is a valuable resource for studying the history of the solar system.
- The Moon is a unique place to conduct scientific experiments and test new technologies in a space environment.
- The Moon is much closer to Earth and provides a convenient location for this testing and developing the technologies and capabilities needed for a mission to Mars.
- Sending humans to the Moon allows for the development and practice of techniques necessary for survival in deep space, such as spacesuits, rovers, and habitats.
- Once people have a sustainable and long-term presence on the Moon, it would allow for easier and less expensive trips to Mars, as it would be closer and easier to support human life.

Where would you go after Mars and why?

After Mars, there are a number of potential destinations that humanity could explore in the solar system (as proposed by scientists and space enthusiasts). Depending on the specific goals of the mission and the capabilities of the spacecraft and technology available, this could include:

- Jupiter's moon, Europa, which is thought to have a subsurface ocean that could potentially harbor life.
- Saturn's moon, Enceladus, which also has subsurface water and geysers that spew water and other materials from the moon's interior.
- The outer solar system beyond the gas giants, like Uranus and Neptune, which have unique features and composition to study.
- Asteroids, as they may contain valuable resources, such as water and metals, and also have scientific interest as leftover debris from the formation of the solar system.

It's important to note that all these missions will require significant advancements in technology and capabilities, and that the decision of where to go next will also be driven by a combination of scientific interest, technological readiness, and funding.