

Name _____

Mars: The Red Planet's Mysteries

Open-Ended Response Answer Key

1. Astronauts planning a human mission to Mars would face numerous challenges, including the thin atmosphere that offers no protection from harmful radiation, extreme cold temperatures, and the need for life support systems to provide breathable air and drinking water. The extended duration of the mission and potential psychological effects on the crew also need to be considered.
2. The discovery of evidence of past microbial life on Mars would be a groundbreaking scientific find. It would suggest that life may not be unique to Earth and that conditions for life could exist elsewhere in the universe. This discovery could revolutionize our understanding of biology, evolution, and the possibility of life beyond our planet.
3. The study of Mars's water history and the search for liquid water are important because liquid water is a fundamental requirement for life as we know it. Finding evidence of liquid water on Mars could indicate habitable environments and increase the chances of discovering microbial life or its remnants. This would have profound implications for our understanding of life's potential existence beyond Earth.
4. Private companies like SpaceX planning missions to Mars represent a significant shift in space exploration. They bring new resources, technologies, and a competitive spirit to the field. Successful missions by private companies could accelerate the pace of Mars exploration, reduce costs, and pave the way for future human colonization efforts. However, these missions also raise questions about governance, regulation, and ethical considerations in space exploration.

