

Name \_\_\_\_\_

## Venus: Earth's Mysterious Neighbor

### Open-Ended Response Answer Key

1. The thick atmosphere and high surface pressure on Venus make it extremely challenging to land and explore the planet. Spacecraft and equipment sent to Venus need to be specially designed to withstand the pressure and extreme temperatures. This limits the types of missions that can be conducted on Venus.
2. Venus's day and night cycle are unique because one day on Venus is longer than its year. Venus rotates very slowly, taking 243 Earth days to complete one rotation, while its orbit around the Sun takes only about 225 Earth days. This results in long days and nights, with extreme temperature variations.
3. Space missions to Venus face challenges such as extreme heat, high atmospheric pressure, and thick cloud cover. Landing on Venus is particularly difficult due to the need for heat-resistant materials and pressure-resistant designs. Sending spacecraft to the surface of Venus requires advanced technology and careful planning.
4. Understanding Venus's climate history is essential for scientists to gain insights into the processes that can turn a planet into an inhospitable world. Some theories suggest that a runaway greenhouse effect, caused by the buildup of carbon dioxide, played a significant role in Venus's transformation. Studying these processes can help us better understand climate change on Earth and other planets.

