

The Inner Planets

Planet 1 – Mercury

1. Why doesn't Mercury have an atmosphere? Give at least two reasons.
2. Why is so little known about Mercury, relative to the other planets?

Planet 2 – Venus

3. As recently as the 1950s, many people envisioned Venus as a wonderful paradise with lush vegetation, fed by incessant rains, hidden beneath its thick clouds. What is it really like down there, and how do you imagine that these optimists were first proven wrong?
4. Name one piece of evidence for the previous existence of oceans or other large bodies of water on Venus. What happened to them?
5. Venus is about the same size, mass, and composition as Earth. How (besides the properties of its atmosphere and its consequences) is it still radically different?

Planet 4 – Mars

6. Mars goes around the Sun once every 1.9 Earth-years. However, you may have read in the papers that in fall of 2003 it was closer to Earth than at any time in tens of thousands of years. Draw a diagram to explain this apparent contradiction.
7. Mars is smaller than Earth, but Martian volcanoes are far larger than even the largest mountains here. Explain why this is to be expected.
8. Explain NASA's justification for choosing the landing sites for Spirit (Gusev Crater) and Opportunity (Meridiani Planum).
9. In the far distant future, the Sun will become much brighter and cause the surface temperature on Mars to rise above zero Celsius. Will this cause the subsurface ice to melt and form oceans again?