



## **Mars as a Solar System Body**

### **The Moons of Mars**

By: Elisabeth Ambrose

Mars has two moons named Phobos and Deimos, Greek for fear and panic. Phobos is the closer of the two, orbiting Mars 9378 km above the planet's center. It is very small – the diameter of the moon is only 22 km. It is very odd-shaped, and has a mass of just  $1.1 \times 10^{16}$  kg. It is composed mostly of carbon-rich rock and is heavily cratered. Most astronomers think that Phobos is a captured asteroid.

Phobos orbits Mars very quickly. It usually rises, transverses the Martian sky, and sets twice every Martian day. The moon is also very close to Mars' surface. Just as an airplane flying over the Earth's equator cannot be seen

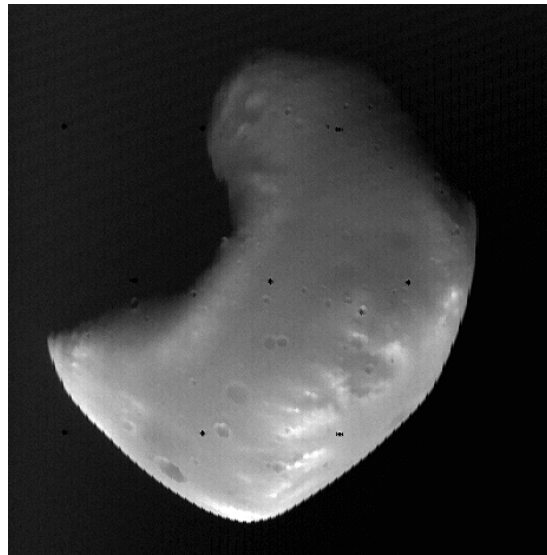
above the horizon for an observer in the United States, Phobos is so close to Mars' surface that it cannot be seen above the horizon from all points on Mars. As it orbits, it slowly spirals in towards the Martian surface. Phobos loses 1.8 meters of altitude per century, and in 50 million years it will either crash into the surface or be destroyed in the atmosphere.



Phobos taken from the Viking 1 Orbiter.  
NASA/JPL.

Deimos orbits farther out than Phobos, and it is even smaller, with a diameter of only 12.6 km and a mass of  $1.8 \times 10^{15}$  kg. In fact, Deimos is the smallest known moon in the Solar System. Like Phobos, Deimos is made of mostly cratered carbon-rich rock, is very amorphous, and is thought to be a

captured asteroid. Like our own Moon, Deimos orbits far enough away from Mars that it is being slowly pushed farther and farther away from the planet.



Deimos, taken from the Viking 2 Orbiter.  
NASA/JPL.

**The Benchmark Lessons were developed with the help of the following sources:**

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College of Education, University of Texas at Austin,  
<http://www.edb.utexas.edu/missiontomars/index.html>  
Benchmarks content author: Elisabeth Ambrose,  
Department of Astronomy, University of Texas at Austin  
Project funded by the Center for Instructional Technologies,  
University of Texas at Austin

