Moons of Mars - Educator's Guide (Ages 16-18)

At the end of these Night Sky activities students will understand:

- Planet Mars has two very small moons
- The moons are called Phobos and Deimos
- Both moons are believed to have porous compositions
- Both moons are irregularly-shaped as they not massive enough to form spheres

Astronomy background information

Phobos and Deimos are the two tiny moons of Mars. Named after the horses who pulled the chariot of the god Mars, they are much smaller than our Moon. The larger one, Phobos, is 22km (13.8 miles) across at its widest while smaller Deimos is just 12.6km (7.8 miles) across. They were not discovered until 1877 as they are so small and close to Mars.

Their tiny sizes mean they have extremely low gravitational fields, not enough to hold onto atmospheres or force them into spherical forms. As a result, they are airless and have irregular lumpy shapes. Thick layers of dust blanket their surfaces, giving the craters on both moons a softer appearance than the sharp-edged craters seen on our Moon.

Based on their measured densities, Phobos and Deimos are not solid lumps of rock. Phobos is especially light, in fact both moons must be very porous under their dusty surface.

The origin of the two moons is still a mystery. One popular theory suggests they were passing asteroids captured by the gravitational field of Mars. However, there are minerals on their surfaces that are found on Mars but not on asteroids. It is more likely that both moons formed from debris flung into space by an impact on the Martian surface.

Phobos has a limited future. Already close to Mars, it is slowly spiralling inwards and gravitation forces will tear it apart sometime in the next 30-50 million years. The debris from the moon will probably eventually form a ring around the planet!

Accessible Learning:

- Text size can be increased in the Preferences section
- Star numbers can be reduced by sliding two fingers down the screen

Night Sky App Essential Settings

No essential settings are required for this activity.