

Mars Factsheet



Curiosity Rover self portrait *Image Credit: NASA/JPL*

The fourth planet from the Sun, Mars is named after the Roman god of war. The diameter of Mars is about half the size of the Earth, and because the planet is smaller and now has no magnetic field, it has a very thin atmosphere, consisting mostly of carbon dioxide.

The length of the Martian day is very similar to Earth's – only 40 minutes longer. Temperatures on the planet vary from around a cold -143°C to 35°C at the equator in summer. With proper protection and an oxygen supply, a human could survive on the surface of Mars. However, the harsh radiation from the Sun would mean that leaving the protection of a spacecraft would only be possible for a short period.

Many robotic missions have been sent to Mars. The most recent is the Mars Curiosity Rover, which touched down on the surface of Mars in August 2012. Curiosity has been sending back high quality photos of the surface and using its onboard laboratory to

analyse the soil. Tests suggest that the conditions on Mars were once ideal for life and that liquid water flowed on the surface.

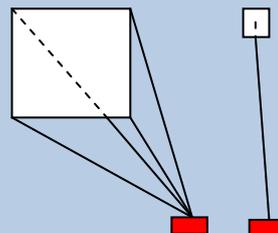


Two missions are foreseen within the ExoMars programme: one consisting of an Orbiter plus an Entry, Descent and Landing Demonstrator Module, to be launched in 2016, and the other, featuring a rover, with a launch date of 2018. Both missions will be carried out in cooperation with Roscosmos.

Image Credit: ESA

ACTIVITY – Low pressure atmosphere

The density of the atmosphere on Mars is about 1% of the atmospheric pressure at the surface of the Earth. This means that a parachute used on Mars would have to have 100 times the area to create the same drag force as a parachute on Earth. To model the difference, cut out a paper parachute 10cm x 10cm and attach this with string to a small plastic toy, such as a Lego brick. Do the same using a 1cm x 1cm piece of paper, as in the diagrams.



Drop the two parachutes from the same height and time how long they take to reach the ground. Explain how the thin Martian atmosphere makes it difficult to land rovers on Mars.