

# Mars: The Red Planet

Mars is the fourth furthest planet from the Sun and the second smallest planet in our solar system. Named after the Roman god of war, Mars is often described as 'the Red Planet' because of its red appearance. The atmosphere on Mars is made up of mainly **carbon dioxide**, meaning that it is not breathable.



A "true colour" photograph of Mars taken by the OSIRIS instrument on the European Space Agency (ESA) Rosetta spacecraft in February 2007.

## Missions to Mars

It is important to launch a mission to Mars at the right time because Earth and Mars are always moving. Scientists have to calculate the distance between the two planets at any one time and to prepare resources for that distance of travel.

## Why Mars?

Mars is not the closest planet to Earth – Venus is. The closest possible distance between Earth and Venus is approximately 38 million kilometres, while the closest distance between Earth and Mars is around 55 million kilometres. Why, then, are most of Earth's exploration efforts directed at the Red Planet?

Venus, Earth's smaller sister, is blisteringly hot and has a thick atmosphere which could melt a block of lead as easily as an ice cream on Earth. Mars, on the other hand, is smaller and much colder.

It is the most **habitable** planet next to Earth because:

- its soil contains traces of water;

## Mars Quick Facts

<b>Size:</b>	6,779km
<b>Moons:</b>	2 (Phobos and Deimos)
<b>Length of year:</b>	687 days (1.9 Earth years)
<b>Length of day:</b>	24 hours 37 minutes
<b>Temperature:</b>	between -140°C and 30°C
<b>Atmosphere:</b>	<ul style="list-style-type: none"><li>• 95.9% carbon dioxide</li><li>• 0.14% oxygen</li><li>• 3.96% other (carbon monoxide, nitrogen, argon, water vapour)</li></ul>

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- it gets enough sunlight to use solar power;
- gravity is 38% as strong as on Earth, which, it is believed, humans could adapt to;
- the atmosphere somewhat protects from the Sun's **radiation**;
- Mars' day, called a 'sol', is only a little longer than Earth's.

### The Mars Rover

The Curiosity rover is a robotic car which is currently exploring the surface of the planet. It is nuclear-powered and the fourth rover sent to Mars in 16 years. It was launched on 26<sup>th</sup> November 2011 and landed on 6<sup>th</sup> August 2012. Curiosity uses the most advanced scientific equipment ever used on Mars.

The main goals of the mission, which forms part of NASA's Mars Science Laboratory, are to:

- study Martian climate and **geology**;
- search for water;
- find out whether Mars could have ever supported life.

### Glossary

**geology** – The science which deals with the physical structure and substance of a planet.

**radiation** – Energy emitted by the Sun, some of which is dangerous to humans when not absorbed by the atmosphere of a planet.



A self-portrait taken by NASA's Curiosity rover.



# Mars: The Red Planet **Questions**

1. Tick the correct response.

We cannot breathe on Mars because the atmosphere does not have enough:

- air
- carbon dioxide
- atmosphere
- oxygen

2. Find and copy the correct word to complete the sentence.

Mars is named after the \_\_\_\_\_ god of \_\_\_\_\_.

3. Which of these are reasons why Mars is a good place to explore? Tick **two**.

- Mars gets enough sunlight to use solar power.
- A day on Mars is very short.
- There is no gravity on Mars.
- There is a little water in the soil on Mars.

4. How many moons does Mars have and what are their names?

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5. What is a day called on Mars and how long is it?

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6. Find and copy one **caption** from the text.

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7. Why does it seem odd at first that NASA has chosen to explore Mars and not Venus?

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8. Why do you think the author has put the facts about Mars' size and atmosphere into a 'quick facts' box?

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