

# Mars: the red planet

- 1 Name the eight planets in the Solar System.
- 2 Read the infograph on interesting facts and statistics about Mars. With a partner, match each of the five headings below with its function.

Mars Earth versus Mars Life on Mars Mars missions Colonisation

- 1 The current exploration situation \_\_\_\_\_
- 2 Facts about the planet \_\_\_\_\_
- 3 How Mars could be made habitable \_\_\_\_\_
- 4 Comparing planetary statistics \_\_\_\_\_
- 5 The possibility of extraterrestrial life \_\_\_\_\_

**3 Find words in the infograph that mean:**

- 1 to cover a surface \_\_\_\_\_
- 2 consisting of things that are similar \_\_\_\_\_
- 3 the quality of being similar to something \_\_\_\_\_, \_\_\_\_\_
- 4 difficult to live in \_\_\_\_\_
- 5 able to support life \_\_\_\_\_, \_\_\_\_\_
- 6 a vehicle containing cameras and instruments \_\_\_\_\_
- 7 the act of sending a space vehicle into space \_\_\_\_\_
- 8 to do something better than someone or something else \_\_\_\_\_
- 9 to become liquid \_\_\_\_\_
- 10 to become very healthy \_\_\_\_\_

**4 Complete the following sentences from the infograph.**

- 1 \_\_\_\_\_ its likeness Mars is a cold, dry, desert-like planet with a thin atmosphere.
- 2 The temperatures are so low that only Antarctica on Earth is comparable, \_\_\_\_\_ Mars is much colder.
- 3 What is the function of the missing words?

**5 Make complex sentences by joining a sentence from group A with a sentence from group B using the words from exercise 4.**

A

- Colonisation of other planets is possible.
- Space exploration is important for the human race.
- Mars has similar qualities to the Earth.
- Unmanned probes and robots are used for space exploration.

B

- It uses up vast amounts of important finance.
- Its extreme conditions would make it practically impossible to live on.
- The fact is that humans could do a better job.
- It would take centuries of extremely difficult work to do.

**6 Discuss the following questions in small groups.**

- What reasons are there for colonising other planets?
- How probable is the colonisation of other planets? Discuss reasons for your answer.
- Would you go to live on another planet? Give possible reasons why.
- What can we do on this planet to avoid having to colonise another in the future?

# MARS: THE RED PLANET

## MARS

Mars is the 4th planet from the sun and being roughly half the size of Earth, it is the second smallest in the Solar System. One of 4 terrestrial planets, it is often referred to as the red planet. Its reddish colour comes from the iron oxide that layers much of its surface. Its Earth-like features include valleys, volcanoes, deserts and 2 polar ice caps. Mars has a similar rotational period to Earth and homogeneous seasonal cycles. It has 2 known moons, which are thought to be captured asteroids due to their irregular shape.

## EARTH VERSUS MARS

	Length of day	Length of year	Average temperature	Most abundant gases
<b>EARTH</b>	<b>24 HOURS</b>	<b>365 DAYS</b>	<b>15 DEGREES CELSIUS</b>	<b>NITROGEN AND OXYGEN</b>
<b>MARS</b>	<b>24 HOURS, 37 MINUTES</b>	<b>687 DAYS</b>	<b>MINUS 60 DEGREES CELSIUS</b>	<b>CARBON DIOXIDE</b>

## LIFE ON MARS?

The similarity of Mars to Earth has caused much debate on whether life exists or has existed on the planet. However, none of the exploration missions have provided any biological proof. Despite its likeness Mars is a cold, dry, desert-like planet with a thin atmosphere. There is no liquid water, which is a quintessential ingredient for life. There is little atmospheric protection from solar or cosmic radiation. The temperatures are so low that only Antarctica on Earth is comparable, although Mars is much colder. The thin atmosphere consists of around 95% carbon dioxide. No known species could survive the harsh Martian surface conditions. Scientific evidence suggests that the planet was once more habitable than it is today, but whether life has ever existed there remains a mystery.

## MARS MISSIONS

Humans have been exploring Mars for almost 50 years. Mariner 4, the first flyby mission, flew past Mars in 1965. There are currently 5 active probes exploring the red planet - 3 spacecraft in orbit and 2 rovers on the surface. The journey time from Earth is between 150 and 300 days depending on the speed of the launch and the alignment of the 2 planets, which affects the length of the journey. Many nations believe that a manned mission is the next logical step as humans could outperform unmanned robots.



## COLONISATION

The terraforming of Mars is a hypothetical process that entails deliberately changing the planet's surface and atmosphere to make areas more hospitable for human habitation. The process would involve 3 simultaneous changes - building up the thin atmosphere, stopping it escaping to outer space, and maintaining heat. To do this, greenhouse gases would have to be introduced into the atmosphere. This would allow the planet to maintain heat from the sun. As the planet heats up, the polar caps would melt and provide water, the essential ingredient for life. The final stage would involve planting trees that would thrive on the abundant levels of carbon dioxide and produce oxygen.