

## MARS: THE RED PLANET

**Level:** Upper intermediate (equivalent to CEF level B2)

**Age:** Teenagers / Adults

**Time:** 60 minutes

**Summary:** This infographic lesson looks at interesting facts and figures about Mars.

**Materials:** One copy of the worksheet per student; access to a projector or IWB to project the infographic from onestopenglish.

### HOW TO USE THE LESSON

**1** Tell students to look at exercise 1. Tell them to write the names of the planets individually, then check with a partner. Take the opportunity to remind them that Pluto is a dwarf planet. It was initially classified as a planet, but was excluded from the list of planets in 2006. Practise the pronunciation of each planet before moving on to the next exercise.

**2** Ask students to read the infographic about Mars and then turn over their papers when they have finished. You could give students the infographic as a printed worksheet or display it on the board from onestopenglish. If you project the infographic from the website, give them enough time to read each section before removing the image. Students match each heading to its function. Ask them to check their answers with a partner. If you have time, you may like to ask them to brainstorm any of the information that they remember from each section. Students read the infographic again to check their answers.

**3** Now ask them to look at exercise 3. Students work in pairs or small groups to find the vocabulary in the infographic. Alternatively, they could do this exercise individually and then check their answers with a partner. Write the answers on the board during feedback and work on the pronunciation of difficult sounds.

**4** Ask students to look at exercise 4 and complete the sentences from memory. Ask them to check their answers using the infographic. Clarify the function of *although* and *despite*. (They are used to express contrasting or surprising information.)

**5** Ask students to look at exercise 5. Ask them to make complex sentences using *despite* and *although*. Remind students that *despite* is followed by a noun or gerund and *although* is

followed by a subject and verb. Be prepared to give them more examples of *despite* and gerund forms if necessary.

**6** Organize your class into small groups of three or four. You may want to demonstrate the activity first by asking a stronger student a discussion question to get some feedback. Students discuss the questions in small groups. Get whole class feedback when they have finished.

#### Key:

**1** Mercury, Venus, Earth, Mars, Saturn, Jupiter, Neptune, Uranus

**2** 1 Mars missions  
2 Mars  
3 Colonisation  
4 Earth versus Mars  
5 Life on Mars?

**3** 1 layer  
2 homogeneous  
3 similarity/ likeness  
4 harsh  
5 habitable  
6 probes  
7 launch  
8 outperform  
9 melt  
10 thrive

**4** 1 **Despite** 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, **although** Mars is much colder.

**5** • Colonisation of other planets is possible, although it would take centuries of extremely difficult work.  
• Space exploration is important for the human race, despite it using up vast amounts of important finance.  
• Mars has similar qualities to the Earth, although its extreme conditions would



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- *make it practically impossible to live on.*  
Unmanned probes and robots are used for space exploration, despite the fact that humans could do a better job.

**6** students' own answers

### RELATED WEBSITES

The following websites might be useful for either you or your students.

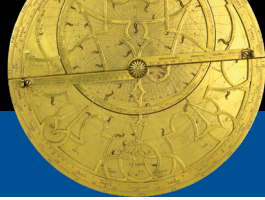
[nasa.gov/topics/journeymars/index.html](http://nasa.gov/topics/journeymars/index.html)

[meteorite.unm.edu/site\\_media/pdf/BringingLife.pdf](http://meteorite.unm.edu/site_media/pdf/BringingLife.pdf)

[smithsonianmag.com/smart-news/now-accepting-applications-for-mars-colonists-728711/](http://smithsonianmag.com/smart-news/now-accepting-applications-for-mars-colonists-728711/)

[bbc.co.uk/science/space/solarsystem/sun\\_and\\_planets/mars](http://bbc.co.uk/science/space/solarsystem/sun_and_planets/mars)

[solarsystem.nasa.gov/planets/mars](http://solarsystem.nasa.gov/planets/mars)



## MARS: THE RED PLANET

**1** Name the eight planets in the Solar System.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**2** Read the infographic on interesting facts and statistics about Mars. Turn it over when you've finished. With a partner, match each of the five headings below with its function.

<i>Mars</i>	<i>Earth versus Mars</i>	<i>Life on Mars</i>	<i>Mars missions</i>	<i>Colonisation</i>
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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 extra-terrestrial life \_\_\_\_\_

**3** Find words in the infographic 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. vehicles 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 grow well \_\_\_\_\_

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

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.



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**5** Make four complex sentences by joining sentences from group A with sentences from group B using the words from exercise 4 (*although* and *despite*).

### A

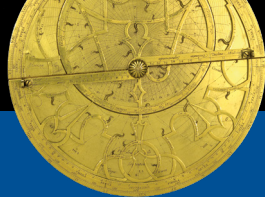
- Colonisation of other planets is possible.
- Space exploration is important for the human race.
- Mars has similar qualities to the Earth.
- Unmanned probes and robots are used for space exploration.

### B

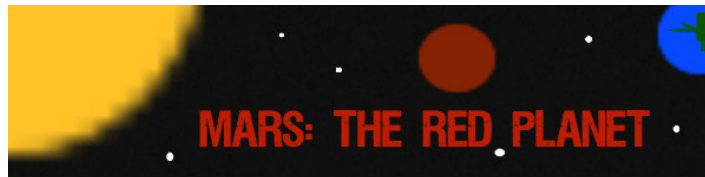
- It uses up vast amounts of important finance.
- Its extreme conditions would make it practically impossible to live on.
- The fact (is) that humans could do a better job.
- It would take centuries of extremely difficult work.

**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 / why not.
- What can we do on this planet to avoid having to colonise another in the future?



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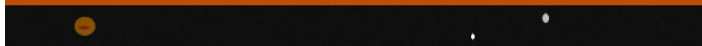
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MARS

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.



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



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.