



# Mars — The Red Planet

*Reading Worksheet — Level F | tahricteaches.com*

Mars, the fourth planet from the Sun, has long **captivated** scientists and dreamers alike. Known as the Red Planet for its characteristic rusty hue, Mars owes its distinctive color to iron oxide — essentially rust — scattered across its **barren** surface. With a diameter roughly half that of Earth, Mars is a cold, desolate world where temperatures can plunge to  $-125^{\circ}\text{C}$  at the poles in winter. Yet despite these **extreme** conditions, it remains the most studied planet in our solar system after Earth.

Mars possesses some of the most dramatic **geological** features in the solar system. Olympus Mons, a **shield volcano** near the Martian equator, rises approximately 22 kilometers above the surrounding plains — nearly three times the height of Mount Everest. Meanwhile, Valles Marineris, a system of **canyons** stretching over 4,000 kilometers, dwarfs Earth's Grand Canyon in both length and depth. These features suggest that Mars was once geologically active, with powerful **volcanic** and tectonic forces shaping its surface over billions of years.

Mars has two small, irregularly shaped **moons**: Phobos and Deimos. Both are significantly smaller than Earth's Moon and are thought to be captured **asteroids** from the outer solar system. Phobos orbits Mars so closely that it completes an orbit in just 7.6 hours — faster than Mars rotates on its own **axis**. Scientists predict that within 50 million years, Phobos will either crash into Mars or be broken apart by **gravitational** forces to form a ring around the planet.

Since the 1960s, numerous **spacecraft** have been sent to explore Mars. Rovers like Curiosity and Perseverance have provided extraordinary insights into Mars's geology and **atmosphere**. Perseverance, which landed in 2021, is specifically designed to search for signs of **ancient** microbial life and to collect rock samples for potential return to Earth. One of its companion instruments, a small helicopter named Ingenuity, became the first powered aircraft to achieve **controlled** flight on another planet.

The question of whether Mars could one day support human habitation is both scientifically fascinating and deeply **complex**. Mars lacks a global magnetic field, meaning its surface is **bombarded** by harmful solar radiation. Its thin **atmosphere**, composed mostly of carbon dioxide, cannot support human breathing. Any future colonists would require pressurized habitats, radiation shielding, and methods of producing water and oxygen from local resources. Yet despite these formidable obstacles, space agencies and private companies are already developing **missions** that could bring humans to Mars within the next few decades.



## A. Vocabulary

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1. **captivated**
  2. **barren**
  3. **geological**
  4. **shield volcano**
  5. **canyons**
  6. **axis**
  7. **gravitational**
  8. **atmosphere**
  9. **ancient**
  10. **bombarded**
- a. hit repeatedly by many things at high speed or intensity
  - b. deeply attracted the interest and attention of someone
  - c. empty and unable to support plant or animal life
  - d. deep valleys with steep, rocky sides cut by water or erosion
  - e. relating to the force that pulls objects toward each other
  - f. the layer of gases surrounding a planet
  - g. an imaginary line through the center of a planet around which it rotates
  - h. relating to the rocks, land, and physical structure of a planet
  - i. a wide, gently sloping volcano built from flowing lava
  - j. belonging to the very distant past; extremely old



## B. True or False

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1.  T  F Mars is the fifth planet from the Sun.
2.  T  F Iron oxide gives Mars its red color.
3.  T  F Olympus Mons is nearly three times the height of Mount Everest.
4.  T  F Valles Marineris is longer than the Grand Canyon.
5.  T  F Phobos orbits Mars slower than Mars rotates.
6.  T  F Perseverance landed on Mars in 2021.
7.  T  F Ingenuity was the first powered aircraft to fly on another planet.
8.  T  F Mars has a strong magnetic field that protects it from radiation.
9.  T  F Mars's atmosphere is mostly made of carbon dioxide.



### C. Fill in the Blanks

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**Word Bank:** atmosphere gravitational ancient barren geological

1. The \_\_\_\_\_ features of Mars include the largest volcano in the solar system.
2. Phobos may one day be torn apart by \_\_\_\_\_ forces and form a ring around Mars.
3. Perseverance is searching for signs of \_\_\_\_\_ microbial life in Martian rocks.
4. Mars has a thin \_\_\_\_\_ that cannot support human breathing.
5. Without a magnetic field, the \_\_\_\_\_ surface of Mars is exposed to dangerous solar radiation.

### D. Comprehension Questions

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1. Why is Mars called the Red Planet? What chemical causes its color?
2. Describe two major geological features of Mars and explain what they suggest about the planet's past.
3. What is unusual about the moon Phobos's orbit, and what might happen to it in the future?
4. What was significant about the helicopter Ingenuity on the Mars mission?
5. What are three challenges humans would face if they tried to live on Mars?

### E. Discussion Questions

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1. Do you think humans should prioritize colonizing Mars? What are the potential benefits and risks?
2. If evidence of ancient microbial life were found on Mars, how would that change our understanding of life in the universe?
3. Some scientists argue that resources spent on Mars exploration should be used to fix problems on Earth. Do you agree?



# Answer Key

## Mars — The Red Planet

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### A. Vocabulary

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1-b, 2-c, 3-h, 4-i, 5-d, 6-g, 7-e, 8-f, 9-j, 10-a

### B. True or False

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1-F, 2-T, 3-T, 4-T, 5-F, 6-T, 7-T, 8-F, 9-T

### C. Fill in the Blanks

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1-geological, 2-gravitational, 3-ancient, 4-atmosphere, 5-barren

### D. Comprehension Questions

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1. Mars is called the Red Planet because iron oxide (rust) covers its surface, giving it a rusty red color.
2. Olympus Mons is the tallest volcano in the solar system; Valles Marineris is a massive canyon system. Together they suggest Mars was once geologically active with volcanic and tectonic forces.
3. Phobos orbits Mars faster than Mars rotates — completing an orbit in just 7.6 hours. Scientists predict it will either crash into Mars or break apart into a ring within 50 million years.
4. Ingenuity became the first powered aircraft to achieve controlled flight on another planet, marking a major milestone in space exploration.
5. Challenges include: no breathable atmosphere (mostly CO<sub>2</sub>), no magnetic field exposing the surface to harmful radiation, and extreme cold. Colonists would need pressurized habitats, radiation shielding, and methods to produce water and oxygen.