



READING PASSAGE · LEVEL 3 · ADVANCED

MARS: THE SEARCH FOR ANCIENT LIFE

A reading passage for advanced readers (Ages 10–12)

Mars, the fourth planet from the Sun, has fascinated scientists for centuries. Its rusty red surface — visible even with the naked eye on a clear night — gives it the nickname "the Red Planet." This colour comes from iron oxide, or rust, that coats the dust and rocks across its surface.

Although Mars is only about half the diameter of Earth, it shares some surprising similarities with our planet. A Martian day is just 24 hours and 37 minutes long, almost identical to ours. It has polar ice caps made of frozen water and frozen carbon dioxide, and it experiences four seasons because — like Earth — its axis is tilted as it orbits the Sun. A Martian year, however, lasts roughly 687 Earth days, almost twice as long as ours, because Mars is farther from the Sun and travels a longer orbital path.

The Martian landscape contains some of the most extreme features in the solar system. Olympus Mons, the largest volcano known to exist anywhere, rises about 22 kilometres above the surrounding plains. Valles Marineris, a vast canyon system stretching more than 4,000 kilometres, dwarfs Earth's Grand Canyon many times over. Yet Mars today is a quiet world: its volcanoes are dormant, and its atmosphere is so thin — about 1% as dense as Earth's — that liquid water cannot exist on the surface for long.

Evidence suggests Mars was once very different. Dried-up riverbeds, ancient lake basins, and minerals that only form in water all hint that, billions of years ago, the planet may have had a thicker atmosphere, flowing rivers, and possibly even oceans. If liquid water once flowed on Mars, simple microbial life may have existed there too.

Today, NASA's Perseverance rover and other missions are collecting rock samples that scientists hope to return to Earth in the 2030s. By studying these samples in laboratories, researchers may finally answer one of humanity's oldest questions: are we alone in the universe?

★ WORDS TO KNOW 5 TERMS

diameter

The distance straight across a circle or sphere through its centre.

atmosphere

The layer of gases that surrounds a planet.

microbial

Relating to microbes — living things too small to see without a microscope.

orbit

The curved path one object takes around another in space.

dormant

Not currently active, but could become active again later.

★ COMPREHENSION QUESTIONS 6 QUESTIONS

- What causes Mars to appear red, both to our eyes and in photographs?

- Describe two ways Mars is similar to Earth and one way it is very different.

- Why does liquid water not exist on the Martian surface today?

- What evidence suggests Mars was very different in the distant past?

- Why are scientists planning to return Martian rock samples to Earth?

- What do the words "dormant" and "microbial" tell you about the kinds of things scientists are looking for on Mars?

