

# Mars

## 1. Size

If the sun were as tall as a typical front door, Earth would be the size of a nickel, and Mars would be about as big as an aspirin tablet.

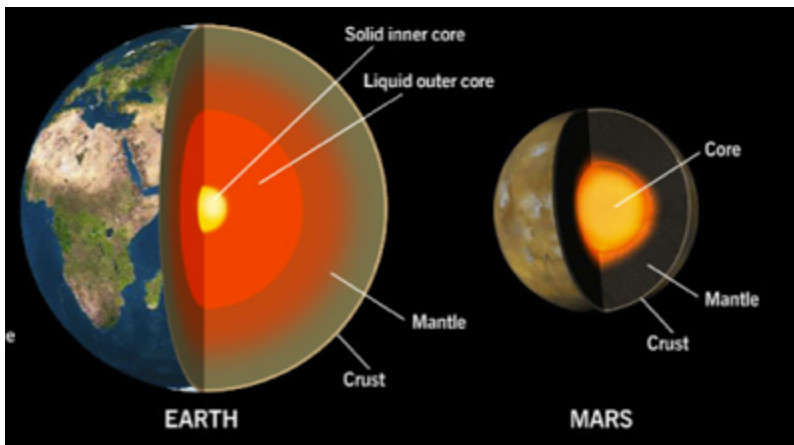
## 2. Fourth Rock

Mars orbits our sun, a star. Mars is the fourth planet from the sun at a distance of about 228 million km (142 million miles) or 1.52 AU.

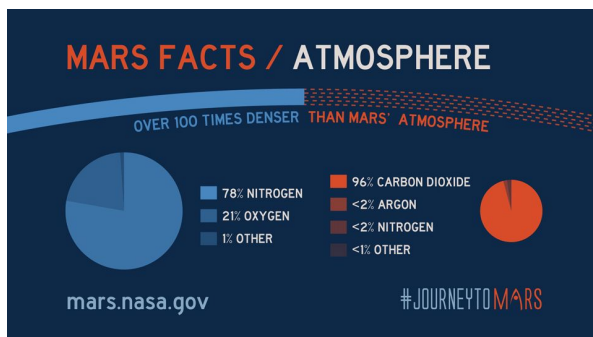
## 3. Rotation/Revolution

One day on Mars takes just a little over 24 hours (the time it takes for Mars to rotate or spin once). Mars makes a complete orbit around the sun (a year in Martian time) in 687 Earth days.

## 4. Structure



Mars is a rocky planet, also known as a terrestrial planet. Mars' solid surface has been altered by volcanoes, impacts, crustal movement and atmospheric effects such as dust storms. It is about half the size of [Earth](#). It has a mantle and a core that is partially liquid and less dense than Earth's.



## 5. Atmosphere

Mars has a thin atmosphere made up mostly of carbon dioxide (CO<sub>2</sub>), nitrogen (N<sub>2</sub>) and argon (Ar). Like Earth, Mars experiences seasons due to the tilt of its rotational axis. Mars' orbit is about 1.5 times farther from the [sun](#) than Earth's and is slightly elliptical, so its distance from the sun changes. That affects the length of Martian seasons, which vary in length. The polar ice caps on Mars grow and recede with the seasons. Layered areas near the poles suggest that the planet's climate has changed more than once.

## 6. Double Moons

Mars has two small moons, Phobos and Deimos, that may be captured asteroids. Potato-shaped, they have too little mass for gravity to make them spherical. Phobos, the innermost moon, is heavily cratered, with deep grooves on its surface.

## 7. Ringless

There are no rings around Mars.

## 8. Many Missions

Several missions have visited this planet, from flybys and orbiters to rovers on the surface of the Red Planet. The first true Mars mission success was Mariner 4 in 1965. Curiosity Rover, one of the most successful NASA missions is currently on Mars.

## 9. Tough Place for Life

At this time in the planet's history, Mars' surface cannot support life as we know it. Current missions exploring Mars on the surface and from orbit are determining Mars' past and future potential for life.

## 10. Rusty Planet

Mars is known as the Red Planet because iron minerals in the Martian soil oxidize, or rust, causing the soil -- and the dusty atmosphere -- to look red.

Scientists believe that Mars experienced huge floods about 3.5 billion years ago. Though we do not know where the ancient flood water came from, how long it lasted, or where it went, recent missions to Mars have uncovered intriguing hints. The cold temperatures and thin atmosphere on Mars do not allow liquid water to exist at the surface for long. The quantity of water required to carve Mars' great channels and flood plains is not evident today. Unraveling the story of water on Mars is important to unlocking its climate history, which will help us understand the evolution of all the planets. Water is an essential ingredient for life as we know it. Evidence of long-term past or present water on Mars holds clues about whether Mars could ever have been a habitat for life.

In 2008, NASA's [Phoenix](#) Mars lander was the first mission to *touch* water ice in the Martian arctic. Phoenix also observed precipitation (snow falling from clouds), as confirmed by [Mars Reconnaissance Orbiter](#). Soil chemistry experiments led scientists to believe that the Phoenix landing site had a wetter and warmer climate in the recent past (the last few million years). NASA's Mars Science Laboratory mission, with its large rover [Curiosity](#), is examining Martian rocks and soil at Gale Crater, looking for minerals that formed in water, signs of subsurface water, and carbon-based molecules called organics, the chemical building blocks of life. That information will reveal more about the present and past habitability of Mars, as well as whether humans could survive on Mars some day.