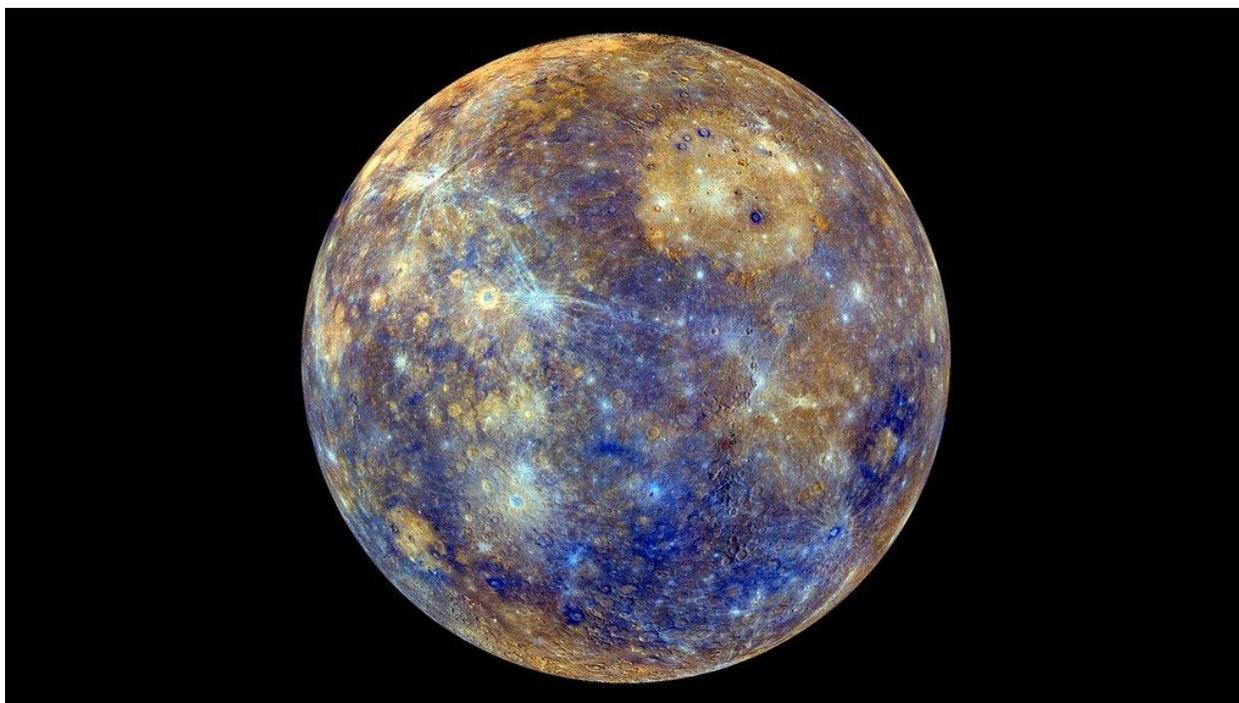


Mercury



The smallest planet in our solar system and nearest to the Sun, Mercury is only slightly larger than Earth's Moon. From the surface of Mercury, the Sun would appear more than three times as large as it does when viewed from Earth, and the sunlight would be as much as seven times brighter. Despite its proximity to the Sun, Mercury is not the hottest planet in our solar system – that title belongs to nearby Venus, thanks to its dense atmosphere. But Mercury is the fastest planet, zipping around the Sun every 88 Earth days.

Mercury is appropriately named for the swiftest of the ancient Roman gods.

Size and Distance

With a radius of 1,516 miles (2,440 kilometers), Mercury is a little more than 1/3 the width of Earth. If Earth were the size of a nickel, Mercury would be about as big as a blueberry.

From an average distance of 36 million miles (58 million kilometers), Mercury is 0.4 astronomical units away from the Sun. One astronomical unit (abbreviated as AU), is the distance from the Sun to Earth. From this distance, it takes sunlight 3.2 minutes to travel from the Sun to Mercury.

Orbit and Rotation

Mercury's highly eccentric, egg-shaped orbit takes the planet as close as 29 million miles (47 million kilometers) and as far as 43 million miles (70 million kilometers) from the Sun. It speeds around the Sun every 88 days, traveling through space at nearly 29 miles (47 kilometers) per second, faster than any other planet.

Mercury spins slowly on its axis and completes one rotation every 59 Earth days. But when Mercury is moving fastest in its elliptical orbit around the Sun (and it is closest to the Sun), each rotation is not accompanied by a sunrise and sunset like it is on most other planets. The morning Sun appears to rise briefly, set and rise again from some parts of the planet's surface. The same thing happens in reverse at sunset for other parts of the surface. One Mercury solar day (one full day-night cycle) equals 176 Earth days—just over two years on Mercury.

Formation

Mercury formed about 4.5 billion years ago when gravity pulled swirling gas and dust together to form this small planet nearest the Sun. Like its fellow terrestrial planets, Mercury has a central core, a rocky mantle and a solid crust.

Structure



Mercury is the second densest planet, after Earth. It has a large metallic core with a radius of about 1,289 miles (2,074 kilometers), about 85 percent of the planet's radius. There is evidence that it is partly molten, or liquid. Mercury's outer shell, comparable to Earth's outer shell (called the mantle and crust), is only about 400 kilometers (250 miles) thick.

Surface

Mercury's surface resembles that of Earth's moon, scarred by many impact craters resulting from collisions with meteoroids and comets. Craters and features on Mercury are named after famous deceased artists, musicians or authors, including children's author Dr. Seuss and dance pioneer Alvin Ailey.

Very large impact basins, including Caloris (960 miles or 1,550 kilometers in diameter) and Rachmaninoff (190 miles, or 306 kilometers in diameter), were created by asteroid impacts on the planet's surface early in the solar system's history. While there are large areas of smooth terrain, there are also cliffs, some hundreds of miles long and soaring up to a mile high. They rose as the planet's interior cooled and contracted over the billions of years since Mercury formed.

Most of Mercury's surface would appear greyish-brown to the human eye. The bright streaks are called "crater rays." They are formed when an asteroid or comet strikes the surface. The tremendous amount of energy that is released in such an impact digs a big hole in the ground, and also crushes a huge amount of rock under the point of impact. Some of this crushed material is thrown far from the crater and then falls to the surface, forming the rays. Fine particles of crushed rock are more reflective than large pieces, so the rays look brighter. The space environment—dust impacts and solar-wind particles—causes the rays to darken with time.

Temperatures on the surface of Mercury are extreme, both hot and cold. During the day, temperatures on Mercury's surface can reach 800 degrees Fahrenheit (430 degrees Celsius). Because the planet has no atmosphere to retain that heat, nighttime temperatures on the surface can drop to minus 290 degrees Fahrenheit (minus 180 degrees Celsius).

Mercury may have water ice at its north and south poles inside deep craters, but only in regions of permanent shadow. There it could be cold enough to preserve water ice despite the high temperatures on sunlit parts of the planet.

Atmosphere

Instead of an atmosphere, Mercury possesses a thin exosphere made up of atoms blasted off the surface by the solar wind and striking meteoroids. Mercury's exosphere is composed mostly of oxygen, sodium, hydrogen, helium and potassium.

Potential for Life



Mercury's environment is not conducive to life as we know it. The temperatures and solar radiation that characterize this planet are most likely too extreme for organisms to adapt to.

Moons

Mercury has no moon.

Attributions To:

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