

St Aiden's Homeschool



Our Solar System

Venus

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Venus

How big is Venus?

Venus is almost the same size as the Earth. This is one reason why Venus is sometimes thought of as Earth's "twin". Venus has a *diameter* of about 12,100 km. It has also been visited by many probes.



Earth and Venus Comparison



Venus Facts:

- Venera 7, the first space probe to land on Venus, was destroyed by the hostile conditions on Venus after only 23 minutes.
- Almost all of the surface features on Venus are named after women.
- A day on Venus is equal to 117 days on Earth.
- Venus is the second closest planet to the Sun. It is a *terrestrial planet*. This means that we think it was created in a similar way to our planet Earth and is made of rock.

Venus is called the Evening Star. It is called this because it looks so bright to us from Earth.

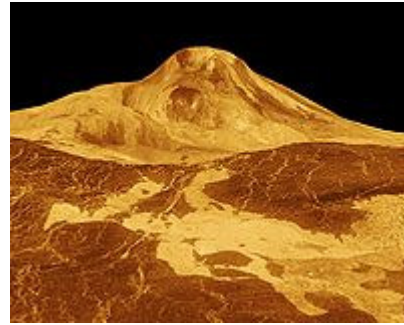


Venus and Earth are almost the same size. Venus is the closest planet to Earth, but it does not have oceans or human life like Earth. Venus gets so hot during the day that it could melt a lead cannonball. The temperature rises to 484 degrees Celsius on the side facing the Sun. Venus has very thick, rapidly spinning clouds which cover its surface. These clouds hold heat in. That is why Venus gets so hot. These clouds also reflect sunlight. That is why Venus appears so bright to us here on Earth. There are constant thunderstorms in these clouds. Venus has several large inactive volcanoes. Much of the surface is covered by old lava flows from these volcanoes.

Venus is unusual because it rotates in a direction opposite that of all of the other planets. Venus spins very slowly as it orbits the Sun. Venus gets so hot because the thick clouds in the atmosphere of Venus hold the heat from the Sun in.

What is the surface like on this planet?

Maat Mons on the Surface of Venus, by radar imaging



The surface of Venus is very different from the surface of the Earth. It is very dry and hot enough to melt lead. The pressure on the surface is very strong. It is the same as being 1 km (3,280 feet) below the surface of the sea on Earth (sort of)

Channels on the surface of Venus, looking like river channels on Earth



Channels that look like rivers have formed on Venus. Scientists think these channels are formed from erupting lava. The lava flows along as it cools down, creating the channels. One feature only Venus seems to have is unusual volcanoes called *arachnoids*. These are volcanoes that have formed differently from other volcanoes we have found in the Solar System. We don't know exactly how they were formed. Venus also has volcanoes like those on Earth.

Parts of the surface of Venus look something like continents. The largest of these areas is called *Ishtar Terra*. Deep basins like those under the Earth's oceans have also been discovered. On Venus, though, they have no water. Features like mountain ranges and meteor craters have also been found on Venus. One of the highest mountains on Venus, *Maxwell Montes*, is about 11 km taller than Mount Everest, the highest mountain on Earth.

The Venera 13 Lander, which made scientific measurements and sent back pictures from the surface of Venus



How long is a day on Venus?

Venus *rotates* (spins around) even more slowly than Mercury. One full rotation of Venus takes about 243 Earth days. Venus also rotates in the opposite direction to the other planets in the Solar System. One day on Venus, from noon to noon, depends on the length of the year as well as the rotation time, and is about 117 earth days.

How long is a year on Venus?

One year on Venus is almost 225 Earth days long. This is less time than it takes Venus to rotate on its axis and less than two Venus days. A year is shorter than a day on Venus (245 days).

What is Venus made of?

The surface of Venus, its crust, is covered in rock. The core of Venus is made of nickel-iron. The atmosphere around Venus is very thick and is made of carbon dioxide, nitrogen, and poisonous gasses that create high pressure and trap in heat.

How much would Venus's gravity pull on me?

If you were on Venus, it would pull you down almost as strongly as Earth. The atmosphere exerts a pressure at the surface more than 90 times Earth's normal sea-level pressure.

Who is this planet named after?

Venus is named after the Roman goddess of love. Sometimes it can be seen shining brightly just before dawn or just after sunset. Some people like the Aztecs and the Greeks, gave Venus two names – one for the morning and one for the evening.

Because Venus and the Earth are the same size, scientists call Venus "Earth's sister planet". For a long time most scientists thought that Venus had plants, animals, and possibly even people. However because Venus is so hot we now know that it is impossible for anything to live there.

How long would it take people to get there?

It could take around a year to get there.

Did You Know

The thick clouds which cover Venus cause a "greenhouse effect". The clouds prevent heat from leaving the atmosphere. If you have ever been in a greenhouse at a plant farm, you probably were very warm. This is what Venus is like - only much, much hotter.

Fact Sheet

Orbit

0.72 astronomical units (AU) from the Sun
Earth is 1 AU from the Sun

Length of year

224.7 Earth days

Length of Day

243 Earth days

Tilt of Rotation Axis

177.4 degrees versus 23.5 degrees for Earth

Size

Diameter: 0.95 of Earth's diameter

Surface Gravity

0.9 of Earth's gravity

If you weigh 80 pounds on Earth, you would only weigh about 72 pounds on Venus

Mass

0.82 of Earth's mass

Surface Temperature

Mean temperature: 867 degrees Fahrenheit

Atmosphere

Carbon dioxide is the primary component

Surface

Venus probably once had large amounts of water like Earth, but it all boiled away. Venus is now quite dry. Most of Venus' surface consists of gently rolling plains with little relief. There are also several broad depressions and two large highland areas. Data from the Magellan mission shows that much of Venus is covered by lava flows.

Moons

Venus has no moons.

Past Missions

Messenger 2 (1962)

More than 20 others including Pioneer Venus, Soviet Venera 7, Soviet Venera 9, and the U.S. orbiter Magellan (launched 1989, mission ended 1994)

Venus

Second planet from the Sun



USGS/NASA PI400160

Venus is the Roman name for the goddess of love. Venus was considered to be the brightest and most beautiful planet or star in the heavens.

The Sun rises in the west and sets in the east on Venus.

Features on Venus are named after goddesses of mythology, famous women, and common female first names.

Venus is visible to the naked eye without the aid of a telescope. It is always close to the Sun in the sky, appearing as a morning star shortly before sunrise or an evening star shortly after sunset. Its motion against the field of background stars shows it to be a planet. The word "planet" is derived from a Greek word for "wanderer."

1/21/2004

Student Activity ~ Venus

Describe Venus.

How big is it?

What is its surface like?

How long is a day on this planet?

How long is a year on Venus?

What is Venus made of?

How much would Venus' gravity pull on me?

Who is this planet named after?

How long would it take people to get there?
