

## Astronomy for Kids - Venus

### Beauty Can Be Only Skin Deep

The second planet from the Sun has been named for the Roman goddess of love and beauty. When you see it in the morning or evening sky, or if you are lucky enough to have a telescope, you would agree with this name. However, if you were unfortunate enough to be dropped onto the surface of this planet, you would find that it is a very unpleasant place indeed.

The atmosphere of Venus is made up almost entirely of clouds of sulfuric acid, the temperature stays constant at around nine hundred degrees Fahrenheit and winds on the surface blow constantly at hundreds of miles per hour. The atmospheric pressure on the surface of Venus is much like that in the ocean here on Earth at a depth of around half a mile.

It is an extremely dangerous place, and the two spacecraft that have landed on Venus have managed to survive for just long enough to send back a few pictures before they were crushed by the pressure of the atmosphere and melted by the extremely high temperatures.

Venus Facts	
<b>Distance from Sun</b>	Approximately 65 million miles
<b>Number of Moons</b>	None
<b>Diameter</b>	7,200 miles
<b>Length of Day</b>	117 Earth days
<b>Length of Year</b>	225 Earth days
<b>Named for</b>	Roman goddess of beauty
<b>Visited by</b>	Galileo, Magellan, Mariner 10 and others

### The Morning and Evening "Star"

When Venus is visible, it is one of the brightest objects in the night sky, being outshone only by our Moon. The planet is so bright that many times it is reported as an Unidentified Flying Object, or UFO. Many people also mistake it for an airplane landing light until they realize that it isn't moving.

If you have a telescope, you may be lucky enough to see what the early astronomer Galileo found out when he first started using his first telescope: Venus goes through "phases" much like our own Moon. (I can remember when I first saw Venus through a telescope and thought for a moment I was looking at the Moon.) Since Venus is closer to the Sun than we are here on Earth, our view of it, and the "phase" it is in, changes depending on the positions of Earth and Venus relative to the Sun.

You can find out whether Venus will be visible during the current month by checking out the [Sky Maps](#) section here at Astronomy for Kids. If Venus can be seen, we will tell you where and when to look for it.



### The Mythology of Venus

Venus was named for the Roman goddess of love and beauty. The equivalent goddess in Greek mythology is Aphrodite. Venus is the only one of the planets in our solar system that is named for a goddess instead of a god, and almost all of the features we have discovered in our exploration of this planet have been named for either historical or mythological women.

Throughout history, many famous artists have chosen Venus or Aphrodite as the subject of a painting or statue when they are trying to represent the ultimate in human beauty. Fortunately, they didn't know what the planet was really like, or the paintings would have been very different.

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### It's Been a Long, Strange Day

Venus is a very odd place for a number of reasons, not the least of which is the fact that it rotates in the opposite direction that Earth does. Venus rotates from east to west, while Earth, and most of the other planets, rotate from west to east. That's just the beginning, though, as a "day" on Venus, which is the time it takes for the planet to rotate once around completely, is 243 Earth days, which is actually longer than a Venusian "year", which is 225 Earth days long.

If you were standing on the surface of Venus, and the sulfuric acid clouds were gone, the Sun would appear to move from west to east as the day progressed. Even though Venus takes 243 Earth days to rotate once around, the time it would take for the Sun to reappear in the same place in the sky is only 117 days. Whether you count the day as being either 243 or 117 Earth days long, it would be a long wait for lunch.

### A Hot and Violent World

Venus is an example of the "greenhouse effect" on a planetary scale. The surface of the planet is covered with a thick blanket of clouds made up mostly of sulfuric acid. This cloud blanket keeps the temperature of planet hot enough to melt lead, and the atmospheric pressure on the surface is almost ninety times as great as it is here on Earth.

This combination of tremendous atmospheric pressure and the extremely high surface temperature have spelled doom for the only two spacecraft to actually land on the surface. The Russian Venera missions both managed to survive on the surface for only about ninety minutes before crushed and melted by the inhospitable planet.

In addition to the violent winds and poisonous atmosphere on Venus, there are still active volcanoes on Venus, and their eruptions continue to add poisonous chemicals to the atmosphere and tremendous amounts of lava to the surface.

The Magellan mission to Venus, and many others that preceded it, has sent back radar maps showing us that Venus is a very strange place, with mountains, volcanoes and lava plains all combining to create a landscape worthy of any science fiction movie.

Venus from Mariner 10



Venus from Mariner 10.

Surface of Venus



Venera spacecraft took this picture of the surface of Venus.

## Astronomy for Kids - Venus

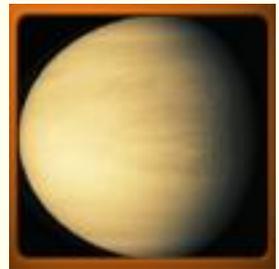
### An Important Waystation on the Journey to Space

Although Venus has been visited by several spacecraft, most of them have been on their way to someplace else, kind of like what happens when you go on vacation and make stops along the way. The picture of Venus at right, taken by the Galileo spacecraft, is a good example of this.

The reason that so many spacecraft have flown by Venus on their way to somewhere else is a technique called "gravity assist". A journey from Earth to any of the outer planets of the solar system (Jupiter, Saturn, Uranus, Neptune and Pluto) is so long that it is practically impossible to make rocket engines large enough to make the entire journey. Scientists figured out that they could use the gravity of one or more planets to help make the trip.

Using careful calculations, scientists are able to make spacecraft fly close enough to Venus, or other planets, that the planet's gravity acts as a slingshot to help power the remainder of the journey. It's a lot like when you ride your bicycle down one side of a hill and then up the other side. The downhill ride helps you get a running start on the uphill side.

Venus from Galileo



While on its journey to Jupiter the Galileo mission took this [picture](#) of Venus.

### Find Out More About Venus

#### [Venus Page at the Nine Planets Site](#)

The Venus section of the Nine Planets site has more detail about this strange world.

#### [The Magellan Mission](#)

The Magellan spacecraft spent a long time using radar to send back our most detailed maps of the surface of Venus.

## Astronomy for Kids - Venus Without its Clouds

### Venus Without the Clouds



Image courtesy of: NASA, Magellan mission

Scientists used radar maps sent back by the Magellan spacecraft to create this image of what Venus looks like without its cloud cover.

## Astronomy for Kids - Venus from Mariner 10

### Venus from Mariner 10

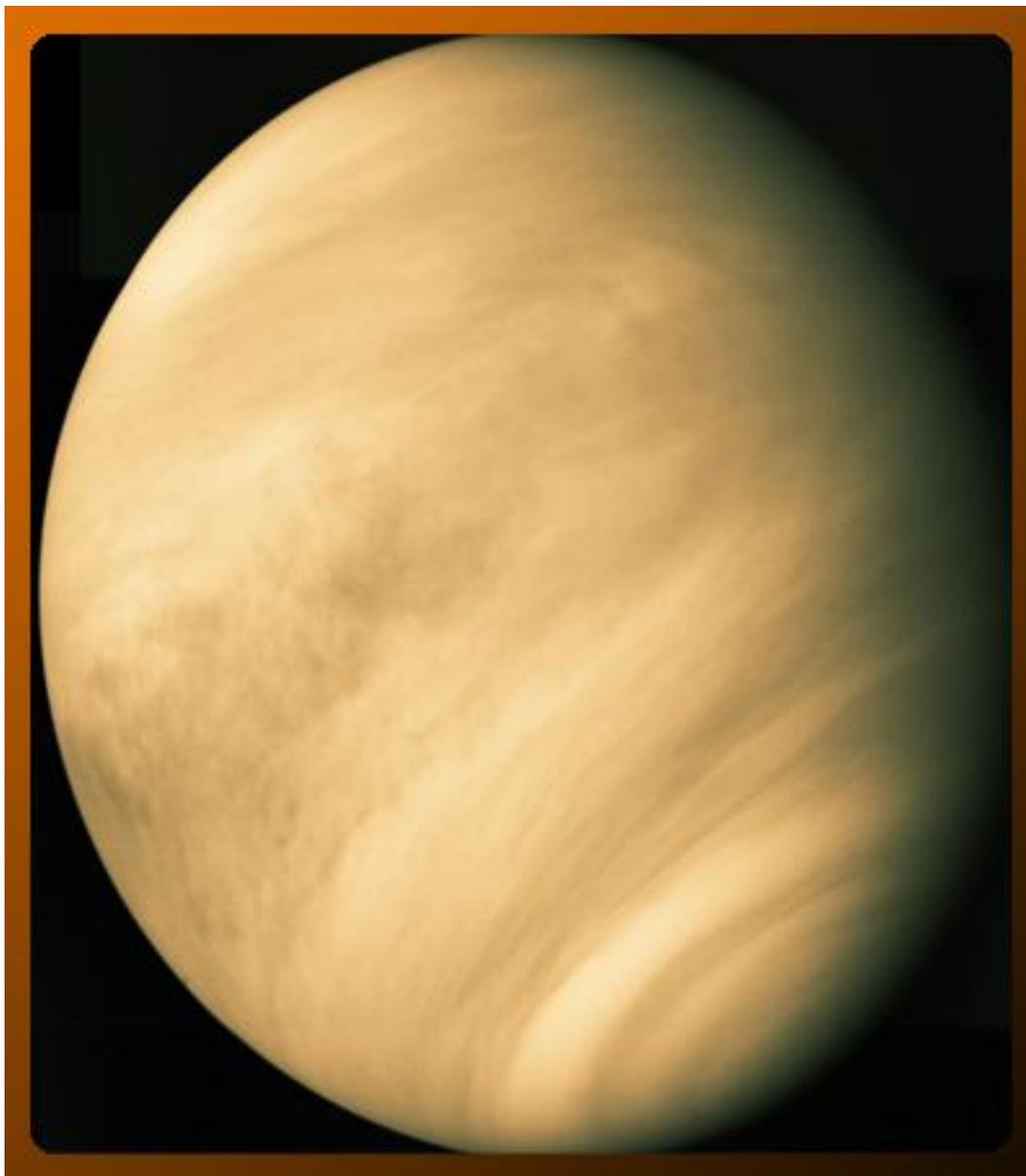


Image courtesy of: NASA, Mariner 10

During its journey to Mercury, the Mariner 10 spacecraft took this picture of Venus.

## Astronomy for Kids - The Surface of Venus

### The Deadly Surface of Venus

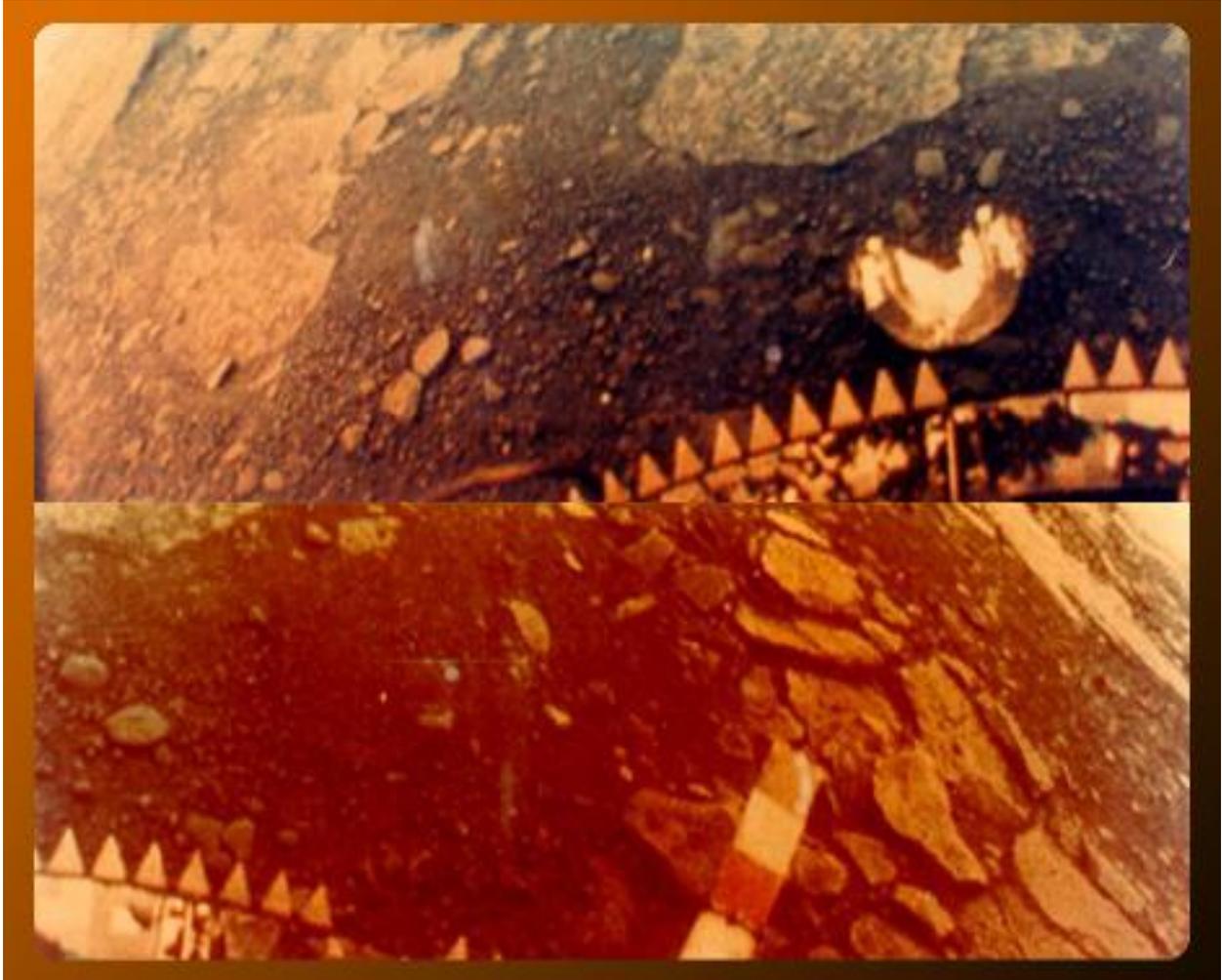


Image courtesy of: NASA

The Russian Venera spacecraft landed on the surface of Venus. During the few minutes it managed to survive before being melted and crushed, it managed to send back the two images above.

## Astronomy for Kids - Venus From Galileo

### Venus from Galileo

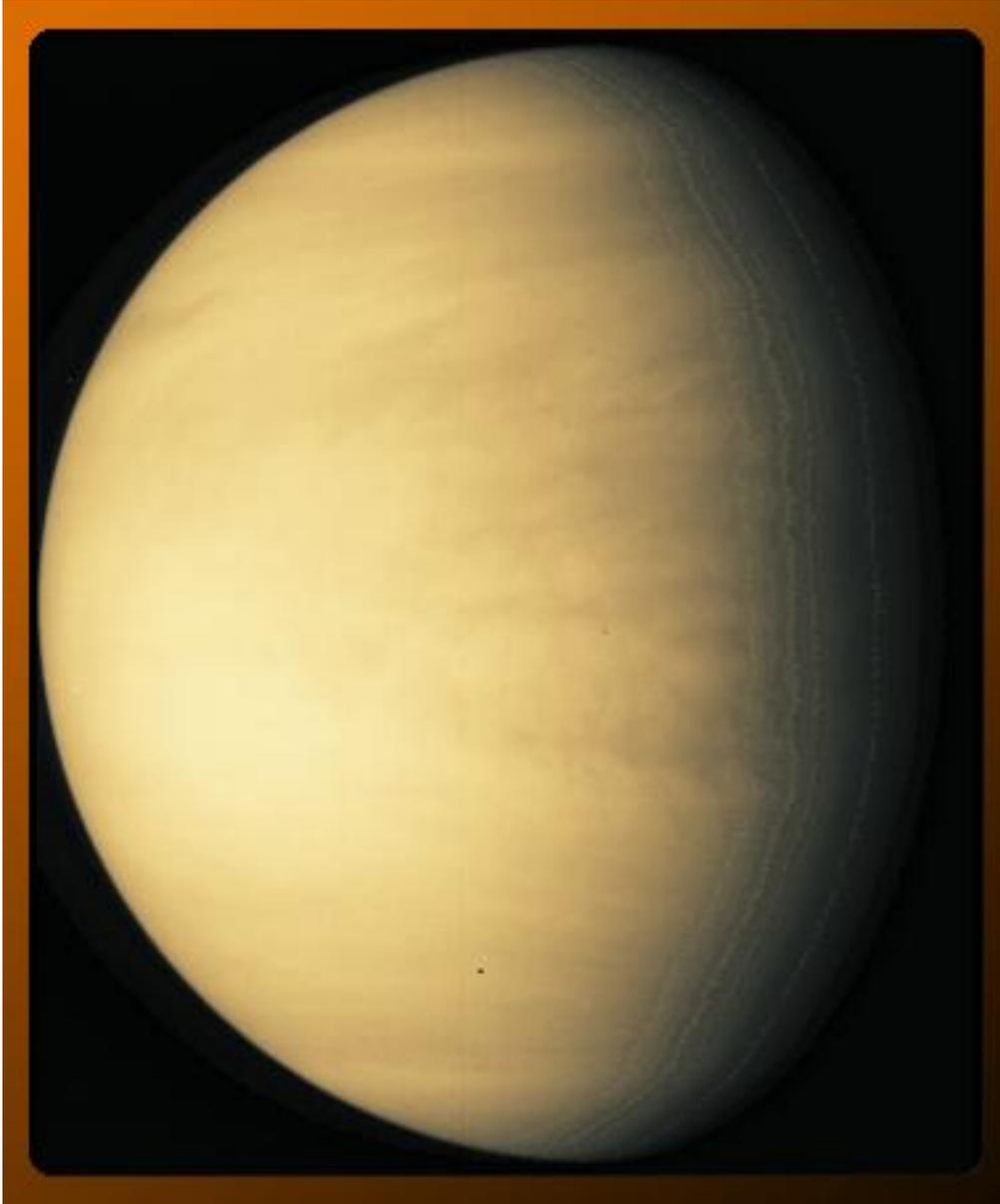


Image courtesy of: NASA, the Galileo Mission

While on its way to Jupiter, the Galileo spacecraft took this image of Venus.