

### 3. Venus (2nd Planet)

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Distance: 108.2 million km

Diameter: 12,104 km

Moons: 0

Key features:

Hottest planet: 465°C

Thick CO<sub>2</sub> atmosphere

Strong greenhouse effect

Special facts:

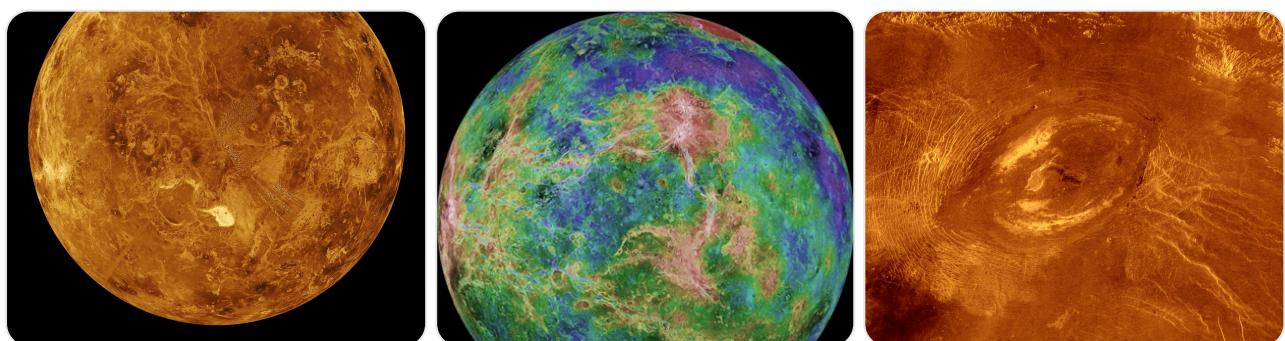
Rotates backwards

Day longer than year

Surface:

Volcanoes

Lava plains give more all the info



## Venus – Complete Information (2nd Planet from the Sun)

### Basic Facts

- **Position from Sun:** 2nd planet
- **Average distance from Sun:** 108.2 million km
- **Diameter:** 12,104 km (almost same size as Earth)
- **Radius:** 6,052 km
- **Mass:**  $4.87 \times 10^{24}$  kg
- **Gravity:**  $8.87 \text{ m/s}^2$  (about 90% of Earth's gravity)
- **Number of moons:** 0
- **Length of day (rotation):** 243 Earth days
- **Length of year (orbit):** 225 Earth days

This means one Venus day is longer than one Venus year.

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## Temperature and Climate

- **Average surface temperature:**  $465^\circ\text{C}$
- **Hottest planet in the Solar System** (even hotter than Mercury)
- Temperature stays almost the same everywhere — day and night

## Why is Venus so hot?

Because of a **very strong greenhouse effect**:

- Atmosphere is **96% carbon dioxide ( $\text{CO}_2$ )**
  - $\text{CO}_2$  traps heat from the Sun
  - Heat cannot escape back into space
  - Result: constant extreme heat
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## Atmosphere

Venus has an extremely thick atmosphere.

### Composition:

- 96% Carbon dioxide ( $\text{CO}_2$ )
- 3% Nitrogen
- Small amounts of sulfur dioxide and other gases

### Clouds:

- Made of **sulfuric acid**
- Very toxic and dangerous
- Reflect sunlight strongly → Venus appears very bright

## Pressure:

- Surface pressure is **92 times Earth's pressure**
  - Equal to being **900 meters underwater on Earth**
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## Rotation and Movement (Special Feature)

Venus rotates differently from most planets.

### Retrograde rotation (backwards):

- Venus spins from **east to west**
- On Venus, the **Sun rises in the west and sets in the east**

### Very slow rotation:

- 1 rotation = 243 Earth days
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## Surface Features

Venus surface is rocky like Earth but very harsh.

### Main surface features:

#### 1. Volcanoes

- Venus has thousands of volcanoes
- Some may still be active
- Largest volcano: **Maat Mons**

#### 2. Lava plains

- Huge flat areas covered by hardened lava
- Most of Venus surface is lava plains

#### 3. Mountains

- Highest mountain: **Maxwell Montes**
- Height: about 11 km

#### 4. Craters

- Impact craters from asteroids
  - Fewer than Mercury because lava covered many
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## Internal Structure

Venus structure is similar to Earth:

1. Core – iron and nickel
  2. Mantle – hot rocky layer
  3. Crust – outer rocky surface
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## Appearance and Visibility

- Venus is the **brightest planet in the night sky**
  - Called:
    - **Morning Star** (seen before sunrise)
    - **Evening Star** (seen after sunset)
  - Visible without telescope
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## Why Venus is called Earth's Twin

Because Venus and Earth are very similar in:

- Size
- Mass
- Density
- Structure

But Venus is not suitable for life because:

- Extreme heat
  - Toxic atmosphere
  - No liquid water
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## Space Missions to Venus

Many spacecraft have visited Venus.

Famous missions:

- Soviet **Venera missions** – first landing
- NASA **Magellan** – mapped surface using radar
- Japan **Akatsuki** – studies atmosphere



Feature	Venus	
Distance from Sun	108.2 million km	
Diameter	12,104 km	
Moons	0	
Temperature	465°C	
Day length	243 Earth days	
Year length	225 Earth days	
Atmosphere	Thick CO <sub>2</sub>	
Rotation	Backwards	
Surface	Volcanoes, lava plains	
Life possible?	No	

If you want, I can also make this into **short notes**, **school project format**, or **PPT format**.

