VENUS

1. Venus is the **second planet** from the Sun.
2. It is Earth's **closest planetary neighbor**.
3. Venus is sometimes called **Earth's twin**.
4. That's because they are similar in **size and composition**.
5. Venus has a **diameter of about 12,104 km**.
6. Earth's diameter is 12,742 km — very close.
7. Venus has **no moons**.
8. It also has **no rings**.
9. Venus is a **terrestrial planet** — rocky, like Earth and Mars.
10. It has a **solid surface**, covered in volcanoes and mountains.
11. Venus is **similar in density** to Earth.
12. But it is a **very different world**.
13. Venus has a **thick atmosphere** made mostly of **carbon dioxide**.
14. Its clouds are filled with **sulfuric acid**.
15. The atmosphere traps heat through an extreme **greenhouse effect**.
16. As a result, Venus is the **hottest planet** in the solar system.
17. Surface temperatures reach **around 465°C (869°F)**.
18. That's **hotter than Mercury**, even though Mercury is closer to the Sun.
19. The thick atmosphere is about **90 times denser than Earth's**.
20. Standing on Venus would feel like being **900 meters underwater**.
21. The pressure would **crush humans and most spacecraft**.
22. Venus has **no liquid water** on its surface.
23. It may have had water **billions of years ago**.
24. But the water was likely **lost to space** due to heat and solar wind.
25. The planet's clouds reflect **most sunlight**, making it very bright.
26. Venus is the **third-brightest object** in Earth's sky after the Sun and Moon.
27. It's often called the **"Morning Star"** or **"Evening Star"**.

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28. That’s because it appears **near sunrise or sunset**.

29. Venus rotates **very slowly** on its axis.

30. A day on Venus (rotation) lasts **243 Earth days**.

31. A year (orbit around the Sun) is only **225 Earth days**.

32. This means a **Venus day is longer than its year**.

33. Venus rotates in the **opposite direction** of most planets.

34. That means the Sun would rise in the **west** and set in the **east**.

35. This kind of rotation is called **retrograde rotation**.

36. The surface of Venus is hidden beneath thick clouds.

37. Scientists use **radar mapping** to study the surface.

38. The surface is dotted with **craters, mountains, and volcanoes**.

39. It has **more volcanoes** than any other planet.

40. Some volcanoes may still be **active today**.

41. The largest volcano is **Maat Mons**, about **8 km high**.

42. Venus has **large lava plains** and **tectonic features**.

43. But it does **not have plate tectonics** like Earth.

44. Venus has **no magnetic field** like Earth’s.

45. Its **core may be inactive or rotating too slowly**.

46. The surface is relatively **young**, possibly **300–600 million years old**.

47. This may be due to **planet-wide resurfacing** events.

48. Scientists believe the planet may **resurface itself periodically**.

49. The planet's name comes from the **Roman goddess of love and beauty**.

50. Venus was known to **ancient civilizations**.

51. The **Babylonians, Greeks, Egyptians**, and others tracked its motion.

52. It has been observed for **thousands of years**.

53. The first spacecraft to visit Venus was **NASA’s Mariner 2** in 1962.

54. It was the **first successful planetary mission**.

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55. In the 1970s and 80s, the Soviet Union sent **Venera probes**.
56. Venera 7 was the **first probe to land** on another planet.
57. Venera 9 took the **first images from Venus's surface**.
58. The landers survived for only **minutes to hours** due to heat and pressure.
59. NASA's **Magellan** mapped most of the surface using **radar**.
60. ESA's **Venus Express** studied the atmosphere until 2014.
61. **JAXA's Akatsuki** is currently in orbit, studying Venus's weather.
62. NASA is planning **two new missions** to Venus: **DAVINCI+** and **VERITAS**.
63. These missions aim to study Venus's **atmosphere and geology**.
64. ESA is also planning the **EnVision mission**.
65. Scientists are investigating whether Venus was ever **habitable**.
66. There may have been **liquid oceans** in the distant past.
67. The loss of water may have triggered a **runaway greenhouse effect**.
68. Some scientists speculate there could be **microbial life** in the clouds.
69. In 2020, scientists reported possible **phosphine gas** in Venus's atmosphere.
70. Phosphine could indicate **biological activity**, though this is debated.
71. Venus's thick clouds and slow winds create a **super-rotation** effect.
72. The clouds circle the planet in just **4 Earth days**.
73. This causes massive **storm systems** and **high-altitude winds**.
74. Lightning has been detected in the atmosphere.
75. Venus's surface winds are **slow**, but corrosive and hot.
76. Rocks on the surface are **basaltic** — formed by lava flows.
77. The atmosphere contains **carbon dioxide, nitrogen**, and **traces of sulfur**.
78. Venus has **no seasons**, since its axial tilt is just **3 degrees**.
79. The high temperatures are nearly **uniform across the surface**.
80. Venus experiences **transits across the Sun**, visible from Earth.
81. These transits occur in **pairs**, over a century apart.

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82. The last pair occurred in **2004 and 2012**.
83. Venus has a **crushing, toxic environment** for humans.
84. Surface exploration is extremely difficult.
85. However, **floating habitats in the upper clouds** have been proposed.
86. At about 50 km altitude, pressure and temperature are Earth-like.
87. Some future missions may test **balloons or aerial drones**.
88. Venus helps scientists study **climate change** and **planetary evolution**.
89. It serves as a warning of **runaway greenhouse effects**.
90. Earth and Venus may have started similarly — but evolved very differently.
91. Venus is one of the most **enigmatic planets** in the solar system.
92. It still holds many **mysteries**, especially about its early history.
93. Studying Venus helps us understand **Earth's fate** in the distant future.
94. Venus has been a subject of **science fiction** and mythology.
95. In art and literature, it often symbolizes **beauty and mystery**.
96. Despite its hostile environment, it remains **scientifically valuable**.
97. Venus may have been **habitable before Earth was**.
98. Exploring Venus will require **new technologies** and **international cooperation**.
99. Venus is our **closest planetary sibling** — and our **most mysterious**.
100. The more we study Venus, the more we learn about **Earth, exoplanets, and Ourselves**

THANK YOU.

VENUS