

# Earth

Type:  
Planet

Size:  
12.756 km

Distance from  
the sun:  
149.597.890 km



Gravity:  
Strong enough to hold us here  
Weak enough we don't get crushed

Atmosphere  
Thick enough to breathe  
Thin enough to see through

Temperature:  
Minimum:  
-89,2 °C  
(Vostok Station, Antarctica)

Maximum:  
70°C  
(Lut desert, Iran)

# Mars



Type:

Planet

Size:

6.794 km

Just over half the size of Earth

Distance from the sun:

227.900.000 km

(Approximately one and a half times as far as the Earth)

Still in our Solar System's habitable zone!

Gravity:

Weak

Just over a third the strength of Earth's gravity. So if you weighed 100kg on Earth, you'd only weigh 38kg on Mars!

Atmosphere:

Quite thin

The atmosphere is less than 1/100 the thickness of Earth's atmosphere!

Temperature:

Minimum:  $-150^{\circ}\text{C}$

Maximum:  $35^{\circ}\text{C}$

Mars' surface is a dry, barren wasteland covered in old volcanoes and impact craters. It is famous for its red colour, which is due to a layer of iron oxide (better known as RUST). Mars experiences SAND STORMS which can scour the entire planet and block the surface from view for days! We also know Mars used to have liquid WATER, rivers of it that might have been around for millions of years.



# Mercury

Type:

Planet

Size:

4.879 km

Mercury is the smallest planet in the Solar System, even the moon Titan is bigger!

Distance from the sun:

57.900.000 km

(It lies thus 3 times as close to the sun as Earth does)  
Nearest planet to the Sun!

Gravity:

Weak

Mercury is very small for a planet, so the gravity is very weak. It's just over 1/3 the strength of Earth's. So if you weighed 100kg on Earth, you'd only weigh 38kg on Mercury

Atmosphere:

No

Gravity is weak so it cannot hold the atmosphere in place and it blows into space

Temperature:

Maximum: 380°C

Minimum: -180°C

Mercury experiences very varied temperatures between day and night-time. It is very close to the Sun, so in daylight the planet becomes very hot. The planet has a very weak atmosphere holds no heat in (nor does it block heat out during the day) so at night it becomes freezing, or way below freezing, in fact!

Mercury's surface resembles that of Earth's Moon, scarred by many IMPACT CRATERS resulting from collisions with meteoroids and comets. An atmosphere acts like a protective cushion around a planet, helping to break up any meteors or asteroids before impact.



Mercury surface and the crater MES



# Jupiter

Type:

Planet

Size:

142.984 km

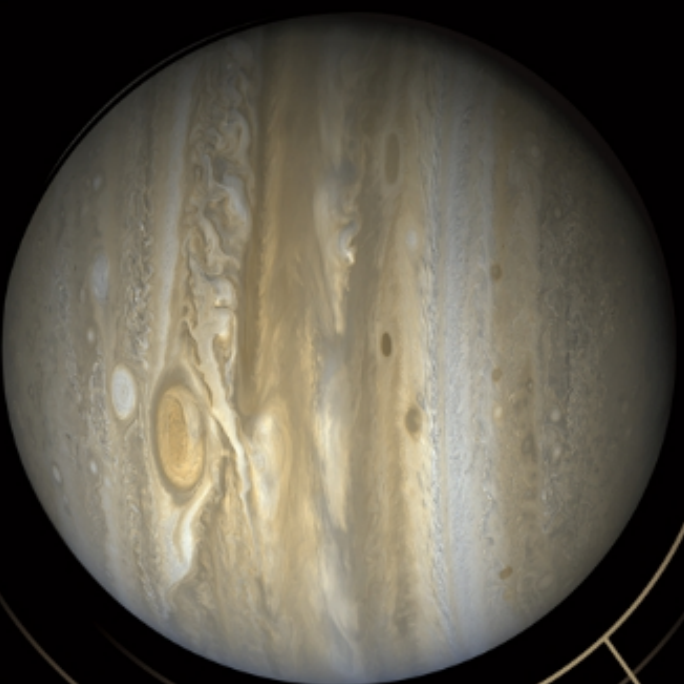
Jupiter is the largest planet in Solar System. Over 1000 Earth's could fit into it! The planet is mainly gas, like all planets in the Outer Solar System, but we think it has an Earth-sized solid core hidden at its centre.

Distance From the sun:

778,500,000 km

(more than 5 times as far as the Earth)

Jupiter lies in the outer Solar system.



Gravity:

Very, very strong

Jupiter is massive, so the gravity here is immensely strong. Also, the deeper you travel into Jupiter's thick atmosphere the stronger the pressure becomes, it is unimaginably strong near the centre of the planet!

Atmosphere:

Extremely thick

Jupiter is largely gas, almost entirely atmosphere. The gas is mostly hydrogen and helium, like the Sun. In fact, if Jupiter was a few times bigger, enough that the core was just a few times hotter, it would probably have turned into a Sun!

Temperature:

Maximum: 36,000°C

The temperature rises steadily higher the deeper you travel into Jupiter's gassy atmosphere. No probe we could create (never mind person!) could stand the heat and pressure even a third of the way down! At the core the astronomers estimate that the temperature is around 36,000°C!



**INTENSE STORMS** rage in Jupiter's atmosphere. The Great Red Spot on Jupiter is a giant spinning storm has been observed since the 1800s.

# IO

Type:

Moon

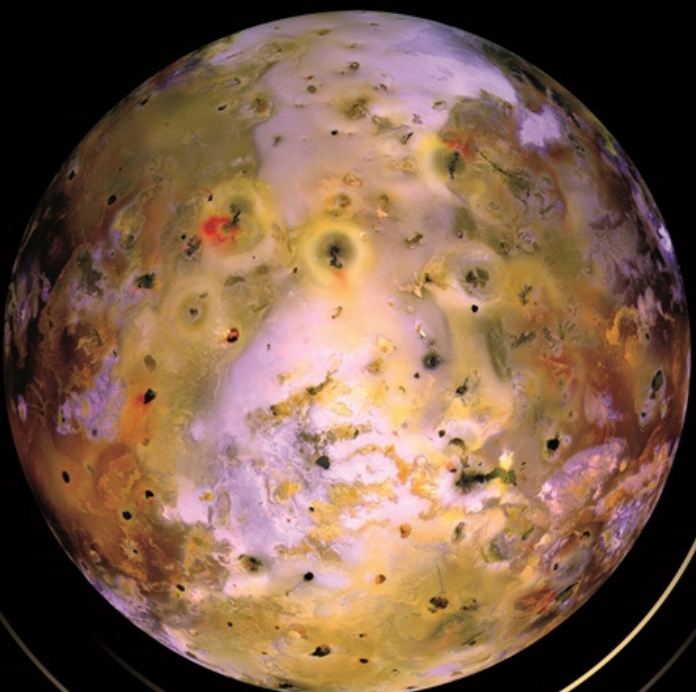
Size:

3,643 km

Distance from  
the sun:

778,500,000 km

Orbits Jupiter in the Outer  
Solar System



Gravity:

Very Weak

If you weighed 100 kg on  
Earth, you'd weigh 18.3 kg

Atmosphere:

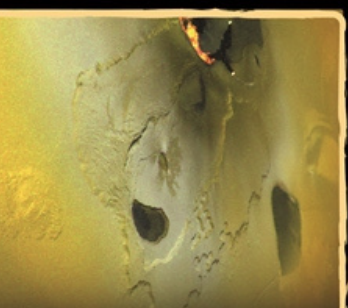
Very thin

One million times thinner than  
Earth's atmosphere!

Temperature:

Maximum: 927 °C

*LOKI - One of Io's volcanoes, Loki, is more powerful than all of Earth's volcanoes combined! It is in a tug of war between Jupiter, Europa and Ganymede (two of the other large moons of Jupiter) and that is what heats it up and causes the explosive volcanic eruptions. If Io wasn't in this strange tug-of-war situation, it would have cooled off a long time ago.*



Io is the most volcanically active world in the Solar System, with over 400 active volcanoes! Even though the moon is so far from the Sun, the hot molten lava flowing over the surface make it a very hot place to be!



# Titan

Type:

Moon

Size:

5,150 km

Titan is the second biggest moon in the Solar System (after Ganymede, one of Jupiter's moons) it's bigger than our own Moon and even the planet Mercury!

Distance from the sun:

1,427,000,000 km

Titan orbits Saturn in the Outer Solar System

Gravity:

Very weak

Atmosphere:

Thick hazy atmosphere

The atmosphere on Titan is 5 times thicker than on Earth and stretches 10 times higher into space

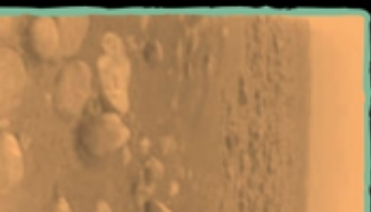
Temperature:

-180 °C

Titan lies very far from the Sun which is why it is so cold and to make things worse Saturn often sits between the moon and the Sun, blocking all the sunlight! So the moon gets very cold and has ice on much of its surface. However, its thick atmosphere holds in some heat, so things aren't as bad there as they could be!

Titan has a special climate:

there are many THICK CLOUDS on Titan, from which it often rains. But unlike on earth, it's not water that falls down, but LIQUID METHANE AND ETHANE!



Source: ESA/ASD&JPL/University of Arizona

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