

7. Jupiter (5th Planet)

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Largest planet

Distance: 778.5 million km

Diameter: 139,820 km

Moons: 95+

Features:

Gas giant

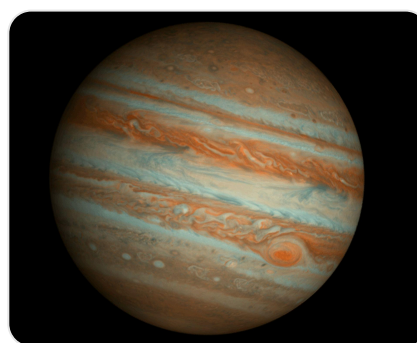
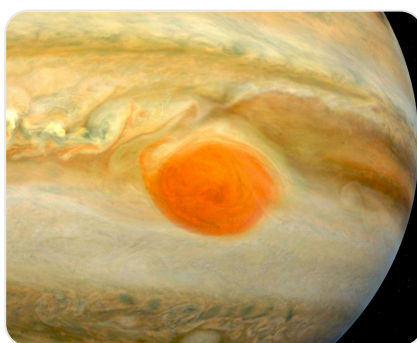
Great Red Spot storm

Strong gravity

Composition:

Hydrogen

Helium full info evert single info



Jupiter – Complete Information (5th Planet from the Sun)

Basic Facts

- **Name:** Jupiter
- **Position from Sun:** 5th planet
- **Type:** Gas giant
- **Largest planet in the Solar System:** Yes

- **Distance from Sun:** 778.5 million km (average)
 - **Diameter:** 139,820 km
 - **Radius:** 69,911 km
 - **Mass:** 1.898×10^{27} kg
 - **Gravity:** 24.79 m/s² (about 2.5 times Earth's gravity)
 - **Number of moons:** 95+ confirmed moons
 - **Rings:** Yes (faint ring system)
 - **Day length:** 9 hours 56 minutes (very fast rotation)
 - **Year length:** 11.86 Earth years
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Size Comparison

- Jupiter is so big that **1,300 Earths can fit inside it.**
 - Jupiter has **more mass than all other planets combined.**
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Structure and Layers

Jupiter does not have a solid surface like Earth.

Layers:

- 1. Outer atmosphere**
 - Cloud layer
 - Made of ammonia clouds
 - 2. Gas layer**
 - Hydrogen gas
 - Helium gas
 - 3. Liquid metallic hydrogen layer**
 - Hydrogen becomes liquid due to high pressure
 - Produces strong magnetic field
 - 4. Core**
 - Possibly rocky and metallic
 - Very hot (about 24,000°C)
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Composition

Main elements:

- Hydrogen – about 90%
 - Helium – about 10%
 - Small amounts of:
 - Methane
 - Ammonia
 - Water vapor
 - Other gases
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Atmosphere

Jupiter has a very thick atmosphere.

Features include:

- Colorful cloud bands
- Strong storms
- Fast winds

Wind speed:

- Up to 620 km/h

Cloud colors:

- White
- Red
- Brown
- Orange

These colors are caused by different chemicals and temperatures.

Great Red Spot

- Giant storm on Jupiter
- Larger than Earth
- Exists for more than 350 years
- Wind speed: about 430 km/h
- Located in southern hemisphere

It is the biggest storm in the Solar System.

Gravity

- Jupiter has very strong gravity
- 2.5 times stronger than Earth
- Can pull comets and asteroids

Example:

- Comet Shoemaker-Levy 9 hit Jupiter in 1994

Jupiter protects inner planets like Earth from many space objects.

Magnetic Field

- Strongest magnetic field of any planet
- 20,000 times stronger than Earth
- Creates powerful radiation belts

Very dangerous for spacecraft and humans.

Moons of Jupiter

Jupiter has 95+ moons.

Four largest moons (Galilean moons):

1. Io
 - Most volcanic moon
2. Europa
 - Has ocean under ice
 - Possible life
3. Ganymede
 - Largest moon in Solar System
 - Bigger than Mercury
4. Callisto
 - Covered with craters

These were discovered by Galileo in 1610.

Jupiter's Rings

- Thin and faint rings

- Made of dust particles
- Discovered in 1979 by Voyager 1 spacecraft

Not visible easily like Saturn's rings.

Temperature

Cloud top temperature:

- About -145°C

Core temperature:

- About $24,000^{\circ}\text{C}$
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Rotation and Orbit

Rotation:

- Fastest spinning planet
- Day = 9 hours 56 minutes

Orbit:

- Takes 11.86 Earth years to complete one orbit around Sun
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Appearance

Jupiter has:

- Stripes called cloud bands
- Swirling storms
- Great Red Spot
- Oval storms

Colors come from chemicals and temperature differences.

Formation

Jupiter formed about:

- 4.6 billion years ago

Formed from:

- Gas and dust left after Sun formed

It was first planet to form.

Exploration Missions

Spacecraft that visited Jupiter:

- Pioneer 10 (1973)
- Pioneer 11 (1974)
- Voyager 1 (1979)
- Voyager 2 (1979)
- Galileo (1995–2003)
- Juno (2016–present)

Juno is currently studying Jupiter.

Special Facts

- Jupiter is called a "failed star"
- It would need 80 times more mass to become a star
- Has shortest day of any planet
- Has strongest storms
- Has biggest moon (Ganymede)

Importance of Jupiter


Jupiter helps protect Earth by:

- Pulling dangerous asteroids

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Summary Table

| Feature | Value |  |
|---------------|-----------|---|
| Planet number | 5th | |
| Type | Gas giant | |

| Feature | Value |
|-------------------|------------------------|
| Diameter | 139,820 km |
| Distance from Sun | 778.5 million km |
| Gravity | 24.79 m/s ² |
| Moons | 95+ |
| Day length | 9h 56m |
| Year length | 11.86 years |
| Main gases | Hydrogen, Helium |
| Famous storm | Great Red Spot |

If you want, I can also make **school project notes, chart, or PDF version** of Jupiter.

