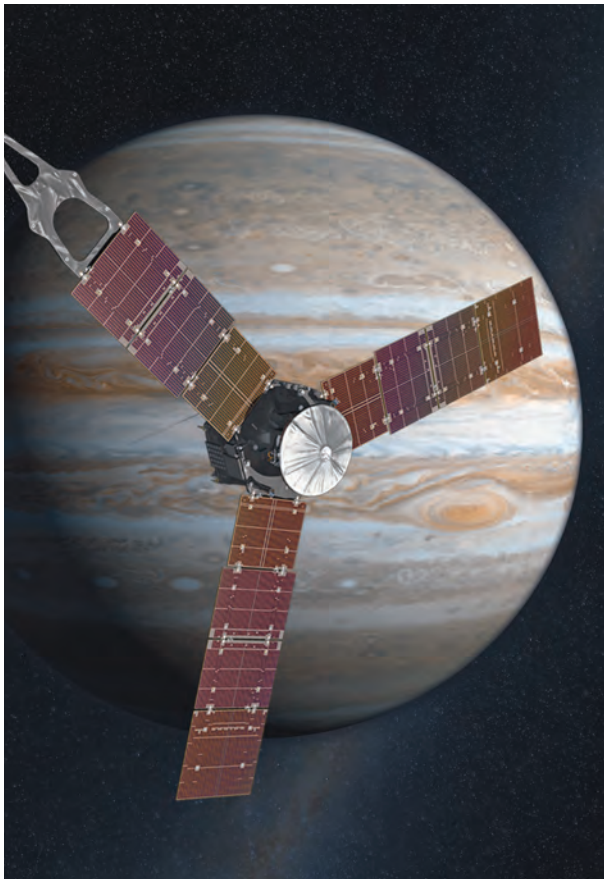
NASA

NASA**Facts**

Juno Mission to Jupiter

Juno's primary goal is to reveal the story of the formation and evolution of the planet Jupiter. Utilizing long-proven technologies on a simple spinning spacecraft placed in an elliptical polar orbit, Juno will observe Jupiter's gravity and magnetic fields, atmospheric dynamics and composition, and the coupling between the interior, atmosphere and magnetosphere that determines the planet's properties and drives its evolution. An understanding of the origin and evolution of Jupiter, as the archetype of giant planets, can provide the knowledge needed to understand the origin of our solar system and planetary systems around other stars.



Launch Period (Launch from Cape Canaveral)	August 2011
Earth Flyby (Earth Gravity Assist)	October 2013
Arrival at Jupiter	August 2016
End of Mission (Deorbit)	October 2017
Spacecraft Mass	3625 kg
Solar Arrays (3)	2.65 m x 8.9 m (435 W total at end of mission)

Science Objectives		**Instrument**
Atmospheric Composition and Dynamics	Measure the water and ammonia abundance in Jupiter's atmosphere	Microwave Radiometer (MWR) and Infrared Spectrometer/Imager (JIRAM)
Magnetic Field	Determine magnetic spectrum and time variability	Fluxgate Magnetometer (FGM)
Gravity Field	Sound the gravity field to explore the distribution of mass inside the planet	X- & Ka-band uplink and downlink
Polar Magnetosphere	Explore three-dimensional magnetosphere and aurorae	Juno Energetic Particle Detector Instrument (JEDI), Jovian Auroral Distributions Experiment (JADE), Ultraviolet Spectrometer (UVS), Radio and Plasma Waves Experiment (WAVES), Infrared Spectrometer/Imager (JIRAM)
Visible Imaging Camera	Correlation of visible images with instrument data. Engage the public and educate students.	JunoCam

NASA Facts

Jupiter

The most massive planet in our solar system, with four planet-sized moons and many smaller moons, Jupiter forms a kind of miniature solar system. Jupiter resembles a star in composition. In fact, if it had been about eighty times more massive, it would have become a star rather than a planet.

Jupiter's four largest moons—Io, Europa, Ganymede, and Callisto—were discovered by Galileo in 1610. Io is the most volcanically active body in our solar system. Ganymede is the largest planetary moon and is the only moon in the solar system known to have its own magnetic field. Europa appears to possess a liquid water ocean beneath the frozen crust of Europa, and similar oceans may also lie within Callisto and Ganymede.

Astronomers have discovered more than 60 moons orbiting the giant planet. Numerous small, outer moons may be asteroids captured by Jupiter's gravity.

Jupiter's appearance is a tapestry of beautiful colors and atmospheric features. Most visible clouds are composed of ammonia. Water clouds exist deep below and can sometimes be seen through clear spots in the clouds. The planet's 'stripes' are created by strong east-west winds in Jupiter's upper atmosphere. Within these belts and zones are storm systems that can rage for years. The Great Red Spot, a giant spinning storm, has been observed for more than 300 years.

The composition of Jupiter's atmosphere is similar to that of the Sun—mostly hydrogen and helium. Deep in the atmosphere, pressure and temperature increase, compressing the hydrogen gas into a liquid. At depths about a third of the way down, the liquid hydrogen becomes electrically conducting, like a metal. In this conducting layer, Jupiter's powerful magnetic field is generated by electrical currents driven by Jupiter's fast rotation. At the center, the immense pressure may support a solid core of ice and rock more than ten times the mass of Earth.

A Cassini view of Jupiter in 2000.

Jupiter has three thin rings around its equator which are much fainter than the rings of Saturn. Jupiter's rings appear to consist mostly of fine dust particles and may be formed by dust kicked up as interplanetary meteoroids smash into the giant planet's four small inner moons.

Jupiter's enormous magnetic field traps swarms of charged particles (electrons and ions) that bombard Jupiter's rings and moons with intense radiation. The Jovian magnetosphere, comprising these particles and fields, balloons 1 million to 3 million kilometers (600,000 to 2 million miles) toward the Sun and tapers into a windsock-shaped tail extending more than 1 billion kilometers (600 million miles) behind Jupiter as far as Saturn's orbit.

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For more information about Juno, go to:
http://www.nasa.gov/juno
http://newfrontiers.nasa.gov/missions_juno.html