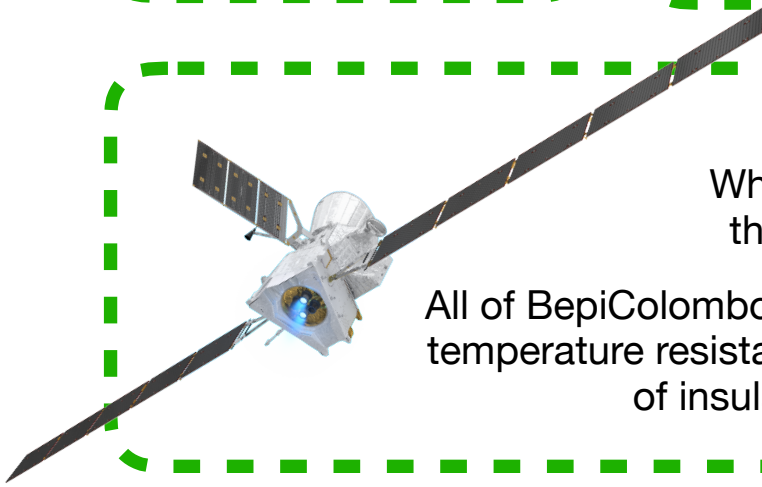


BepiColombo

Mission type: Orbiter
Travel time: 7 years
Science time: 1 year

BepiColombo is made up of two different orbiters which will travel to their destination together in a Transfer Module.

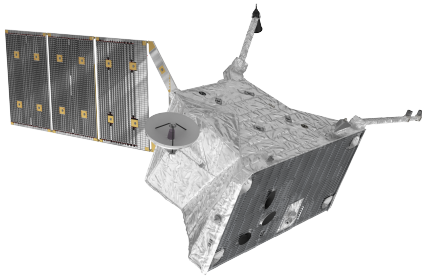


Transfer Module

When the solar panels are opened, the spacecraft is over 30m wide.

All of BepiColombo's components have new high-temperature resistant coatings and multiple layers of insulation for protection.

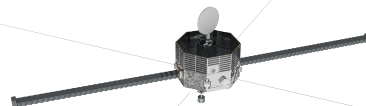
Planetary Orbiter



Only the edge of the solar array face towards to Sun to collect power.

The Orbiter contains many instruments to carry out experiments. Including a laser altimeter and an x-ray spectrometer which will map the surface of the planet.

Magnetospheric Orbiter



The Magnetospheric Orbiter rotates 15 times every minute so that it's solar array doesn't overheat.

The Orbiter will aim to study the interaction between the planet's magnetosphere and the solar plasma.

Venera 13

Mission type: Lander

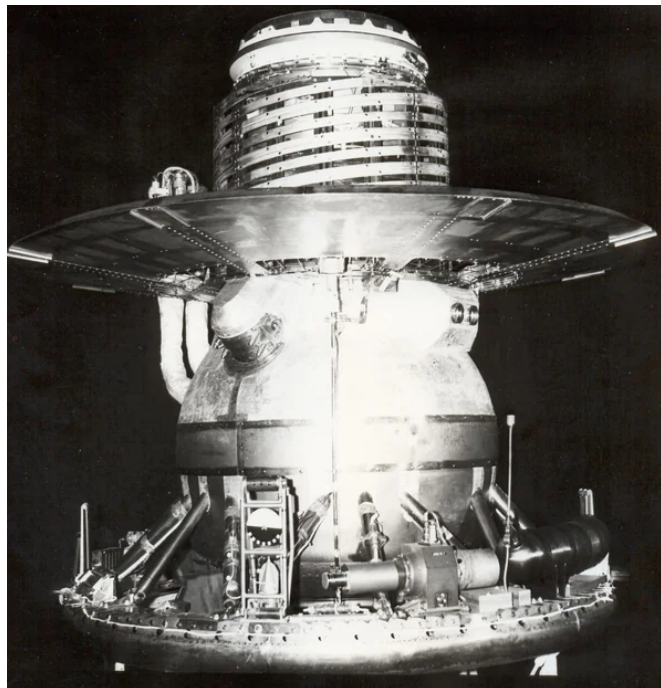
Travel time: 4 months 2 days

Science time: 127 minutes

The lander was transported to the planet by a 'bus' which helped send data back to Earth.

To protect the instruments from intense heat and pressures at the planet's surface, Venera's instruments were kept safe inside a spherical shell.

The big 'dish' above the sphere helped to slow down the lander as it moved through the atmosphere.



The Venera 13 lander had cameras to take pictures at the surface, a spring-loaded arm to measure how hard the surface is and a microphone to measure how fast the wind is.

Hayabusa2

Mission type: Sample return

Travel time: 3.5 years

Science time: 1 year, 5 months

Hayabusa2 has four separate thrusters to help it move between its target and Earth.



Hayabusa2 used four small rovers to explore the surface before collecting a sample.

The long arm at the bottom of Hayabusa2 touched down onto the loose surface of the target and fired a heavy projectile into the body.

The dust and rocks from the surface which exploded out from the surface were collected by the spacecraft ready to be returned.

The material collected by Hayabusa2 was sealed inside airtight containers and brought back to Earth by the space craft.

The samples will be used to investigate how the rocky planets were formed and where water (and life) on Earth may have come from!



Juno

Mission type: Orbiter

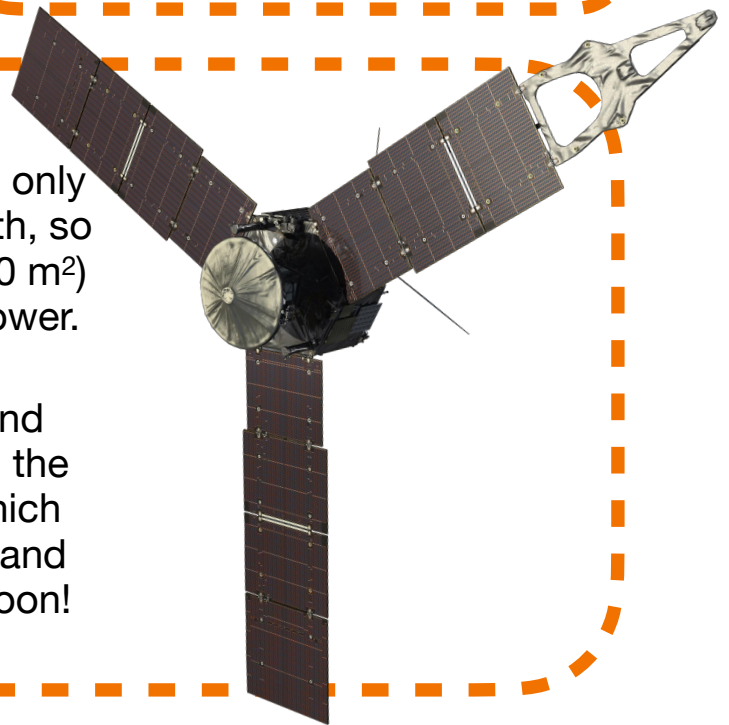
Travel time: 4 years, 10 months

Science time: 5 years

Juno did so well on its planned 5 year mission, that its expected to live for at least 4 more years

At its destination, Juno receives only 4% of the sunlight we do on Earth, so its solar panels are very large (50 m²) to collect enough sunlight for power.

The orbit of the spacecraft around the planet was designed to avoid the planet's dense radiation belts which could damage the solar panels and cause it to crash into a moon!



Juno's camera took pictures of the upper atmosphere to measure how the planet's cloud bands move.

Another main goal is to estimate the size, mass and gravitational field of the planet's mysterious core.

Cassini-Huygens

Mission type: Orbiter

Travel time: 6 years, 9 months

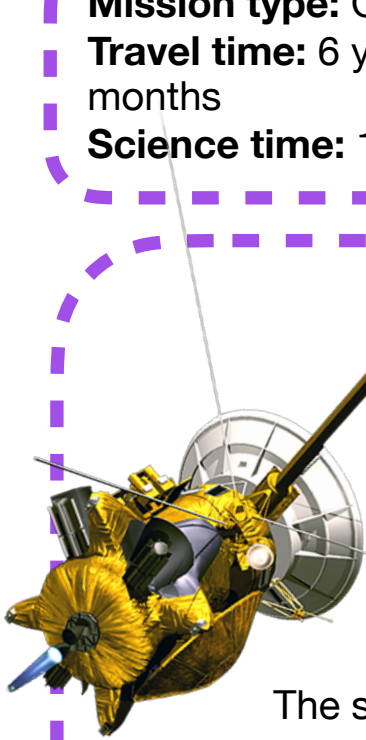
Science time: 15 years

The space mission was named after two astronomers who discovered the planet's rings and one of its moons Titan.

Cassini was powered by nuclear fuel so that it did not rely on solar power, which would be hard to collect so far away from the Sun.

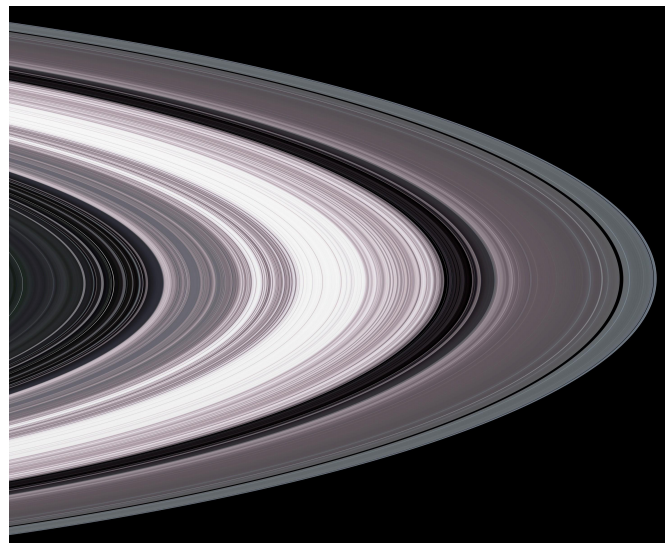
The large, white antenna dish helped send the scientific data approximately 850 million miles back to Earth.

The spacecraft was covered in an amber blanket which was designed to keep the spacecraft warm enough and protect from tiny meteorite impacts during travel.



Cassini was designed to study the structure and movement of the planet's rings and investigate the surfaces of the planet's moons.

The orbiter also studied the planet's atmosphere and clouds.



New Horizons

Mission type: Probe

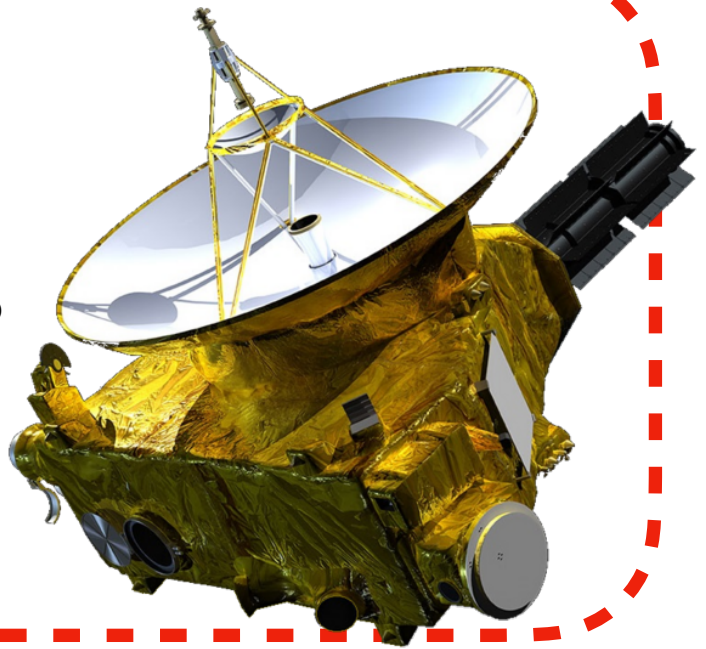
Travel time: 9 years, 6 months

Science time: 22 hours

New Horizons performed the first ever flyby of the target before it continued journeying outwards.

The probe is covered in a reflective blanket to help keep the spacecraft at a warm enough temperature to function.

Even with the large antenna to help send the data back to Earth, information from the flyby took over 15 months to arrive back.



During the close approach, New Horizons took pictures of the object's surface and of its moons.

After the probe went past, it turned around to take a picture of the very thin atmosphere glowing in the distant sunlight.