

Station # 5 Jupiter



To reach the Jupiter sign, you have traveled approximately 43 minutes and 2600 steps from the Sun model

To reach Jupiter from Earth, you would travel approximately 628 million km. In this model that distance is equivalent to about 2100 steps.



Compare the distance you would travel from the Earth to the Sun with the distance from Earth to Jupiter. How do these distances compare? What challenges would be encountered in each of these journeys



With a Partner: Read over the information on the Jupiter sign. In the table below, compare Earth and Jupiter using information from the sign and your previous knowledge about Earth.

Characteristics	Earth	Jupiter

Stand-Up, Hands-Up, Pair-Up: With your partner, find another pair and take turns sharing **one** of your planet comparisons.

When each pair has shared one comparison, raise your hands and look for another pair to partner with. Share one of your planet comparisons with this new pair, and listen to theirs. Repeat this process until time is called or you have shared with all other pairs.



Jupiter Station #5

Super Sized Super...

Big - Eleven times the diameter of Earth, 1,300 Earths could fit inside Jupiter.

Heavy - Two and a half times more mass than all the other planets combined.

Grip - Sixty-one moons and small asteroids orbit Jupiter, the most of any planet.

Stormy - The Great Red Spot is a gigantic rotating storm, three times Earth's diameter. First discovered in 1664 by Galileo, it will likely last for hundreds to thousands of years.

Fast - Jupiter spins so fast that it bulges at the equator. A day on Jupiter lasts only 10 hours, the shortest day in the solar system.

Temperatures - Jupiter produces almost as much energy from its interior as it receives from the Sun. This heat is generated by gravitational contraction. Jupiter is actually shrinking by a few millimeters each year!

Magnetic - Electrical currents in Jupiter's "metallic hydrogen" core create a magnetic field 20,000 times greater than Earth's.

Thin Rings - Discovered by Voyager, they are one hundred times fainter than Saturn's rings.

Colorful - Jupiter's bands give it the appearance of a dyed Easter egg. Orange, brown and white cloud patterns are produced by Jupiter's extreme winds.

(Jupiter information continued on next page)



Labels for Jupiter interior (outer to inner)

- **Hydrogen gas**, plus small amounts of methane and ammonia.
- **Liquid hydrogen** changing to “liquid metallic hydrogen” below 10,000 km. *In this state, the hydrogen atoms break down to protons and electrons, similar to conditions in the Sun's interior.*
- **“Ice”** A soupy mixture of **water, methane,** and **ammonia** under high temperature and pressure.
- **Rock-ice core** about ten Earth masses in size.

Jupiter's Moons

The four Galilean moons of Jupiter are among the most interesting objects in the Solar system.

Callisto

Callisto is almost an exact twin of Mercury in size and in appearance. Both worlds are the most heavily cratered objects in the solar system. They have changed little since their formation because they have almost no geologic activity.

Ganymede

The largest Moon in the solar system, Ganymede is larger than Mercury and Pluto combined. It is the only known satellite that has a magnetic field. Its surface is a strange quilt of dark and light terrains, appearing as though someone dragged a giant rake across it.

Europa

Europa's icy surface resembles a cracked eggshell. An ocean of liquid water lies under the ice. It is believed that water flows upward from the interior and freezes, resurfacing Europa with fresh ice, to make it the smoothest body in the solar system.

Io

About the size of our Moon, Io is the most volcanically active body in the solar system. Yellow and orange sulfur deposits cover its surface, giving Io the appearance of a cheese pizza.

