Our Solar System!

Concept & Illustrations
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Little Eye Publication

During the lockdown period due to outbreak of COVID 19, this art book we have designed for our three year old son Abhimanyu. All the drawings have been made by the authors on hot press paper in water colour. The written text has been compiled with the help of Wikipedia, other online and printed resources and the page background 'a galaxy wallpaper' is by the Felix-Mittermeier available at Unsplash!

It is free to share and we hope that will be useful to your little ones (designed for the kids ages between 3 to 9) to understand our solar system at right age and in right way!!

Our Solar System!
Little Eye Publication,Shirwal,
B307, Phoneix Ribereno, Shirwal, Satara, India 412801
23 April 2020 (English Edition)

Front Cover: Planet System (illustration and position not to the scale)
Back Cover: A full Moon (Pictured on 7th April 2020 by authors).

About the Solar System

The solar system can support a trillion humans. And then we'd have a thousand Mozarts and a thousand Einsteins" Jeff Bezos

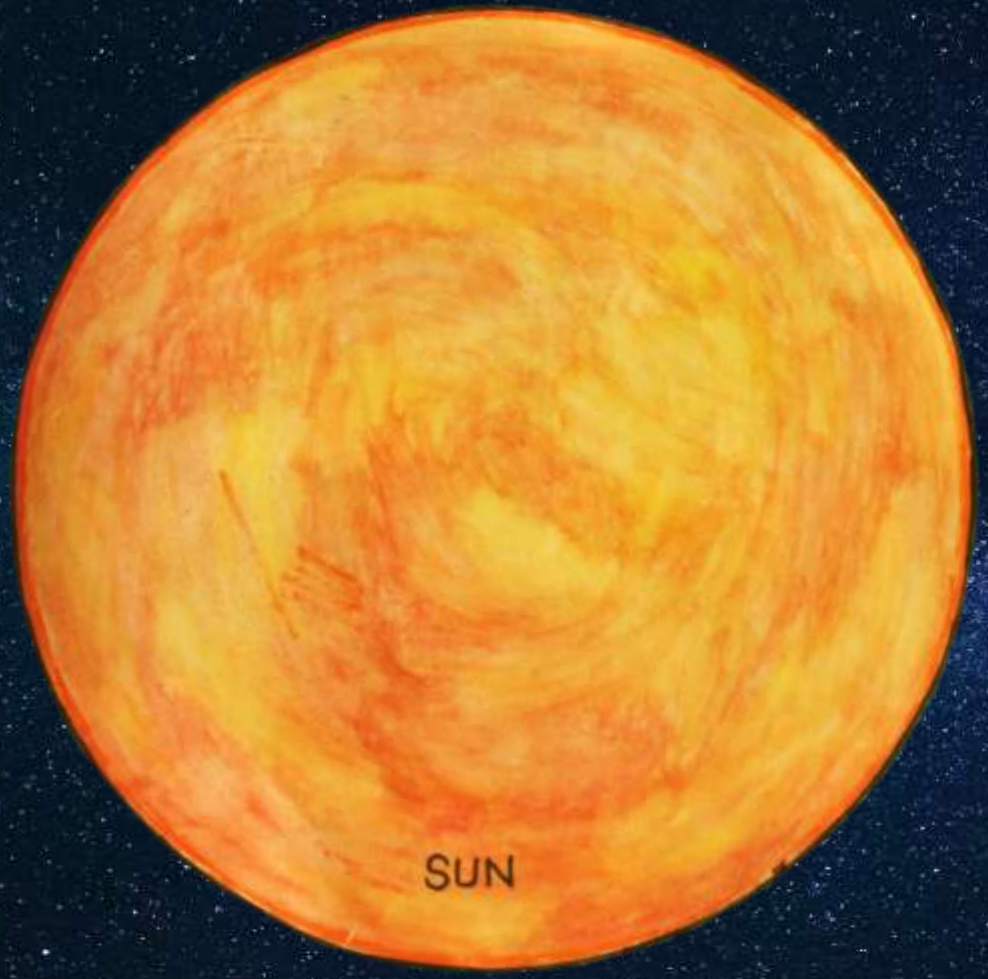
Our solar or planetary system said to be formed around 4.6 billion years ago, the most of the mass in the system is occupied by the Sun followed by Jupiter. The Sun is immediately surrounded by four smaller planets viz. Mercury, Venus, Earth and Mars, these often called 'terrestrial planets' made up of rock and metal. These terrestrial planets followed by massive and large and beautiful Jupiter, a gas giant composed of hydrogen and helium. The Saturn is the next planet similar, but smaller than Jupiter and it is distinguished by its extensive ring system. The two outermost planets, Uranus and Neptune, are ice giants and composed of volatiles (like water, ammonia and methane). All these eight planets moves in circular orbit like a flat disc called 'ecliptic'.

All these planets are located or moving in 'Local interstellar Cloud', 'Local Bubble' and 'Milky Way'. The latter location is well known to us, as it named due to its appearance (a hazy, whitish galaxy band during the night) from the Earth.

The planetary system also has smaller objects composed of rock and metals, many such recognised as 'Dwarf Planets' like Pluto. Many of the smaller bodies are orbited by 'natural satellites' and usually called 'moons'. Like the Moon (see the back cover), the only natural satellite for our planet Earth!

It is difficult to describe the solar system in a page, but still we have drafted the summary to understand and inculcate the solar system in juvenile minds!

Sun



Diameter: 1.39 million kms or 109 times bigger than Earth!
Distance from Earth: 4.6 billion kms
Mass: 330000 times heavier than Earth and about 99.86% of total solar System.
Composed of: mainly hydrogen (73%) and helium (25%)

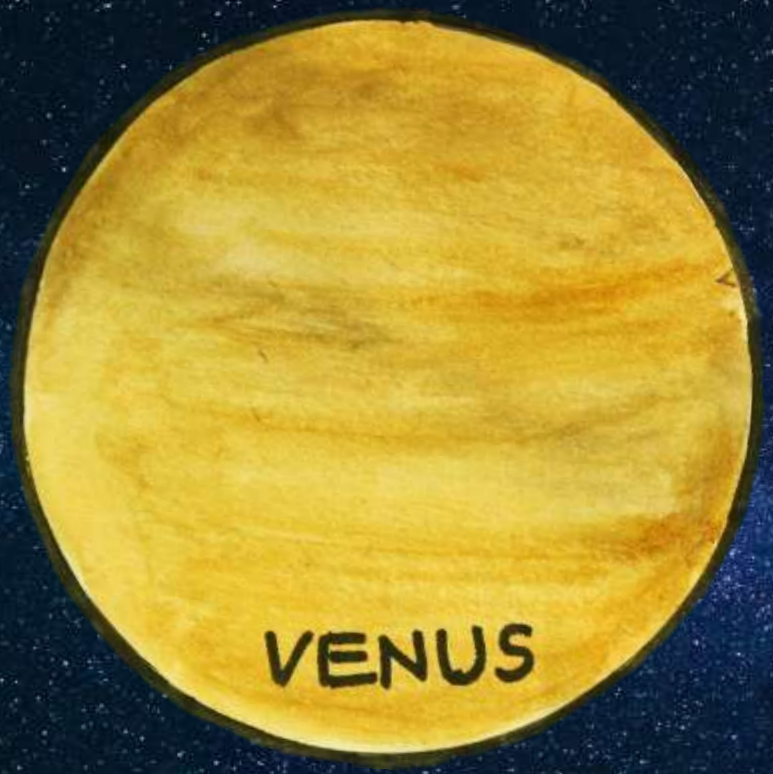
The Sun is located at the Centre of the Solar System, a much brighter and an important source of energy for life on Earth!. It generate 4 million tons of matter into energy at every second mainly due to fusion of tons of hydrogen into helium.

Mercury

Diameter: 4879 km, which is approximately smaller than Earth!
Distance from Sun: 56.56 million km
Distance from Earth: 77 million km
Mass: 3.285 x 10^23 kg
Composed of: 70% metals and 30% silicate material
Orbital period: 88 days

Mercury is the smallest and innermost planet in the Solar System, its orbit around the Sun also shortest of the planets in Solar System. Unlike all of the other planets in the Solar System, Mercury is just bare rock. It is named after the Roman deity Mercury, the messenger of the gods

Venus



Diameter: 12,104 km, nearly as big as the Earth!
Distance from Sun: 107.78 million km
Distance from Earth: 73.113 million km
Mass: 4.867 x 10^24 kg
Composed of: a central iron core and a rocky mantle, similar to the composition of Earth. Atmosphere is mainly made up of carbon dioxide (96%) and nitrogen (3%)
Orbital period: 225 days

It is the second planet from the Sun and named after the Roman goddess of love and beauty. As the second-brightest natural object in the night sky after the Moon, it is visible to the naked eye in the Western horizon in the evening! 🚀

Earth

Diameter: 12,742 km

Distance from Sun: 150.4 million km

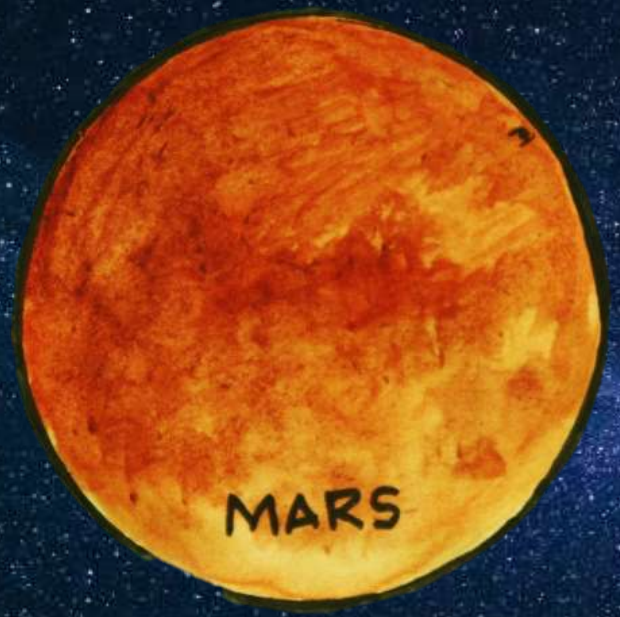
Mass: 5.972 x 10^24 kg

Composed of: Crust, Rock and Core and has Oxygen (46.6%) and other elements.

Orbital period: 365.2 days

The third planet from the Sun, fifth largest planet in the Solar System which is unique as it harbours life. Earth is the only plant name in the Planet System that doesn't have Greek or Roman mythology! Earth's gravity interacts with other objects in space, especially the Sun and the Moon, which is Earth's only natural satellite.

Mars



Diameter: 6,779 km

Distance from Sun: 227.9 million km

Distance from Earth: 194.17 million km

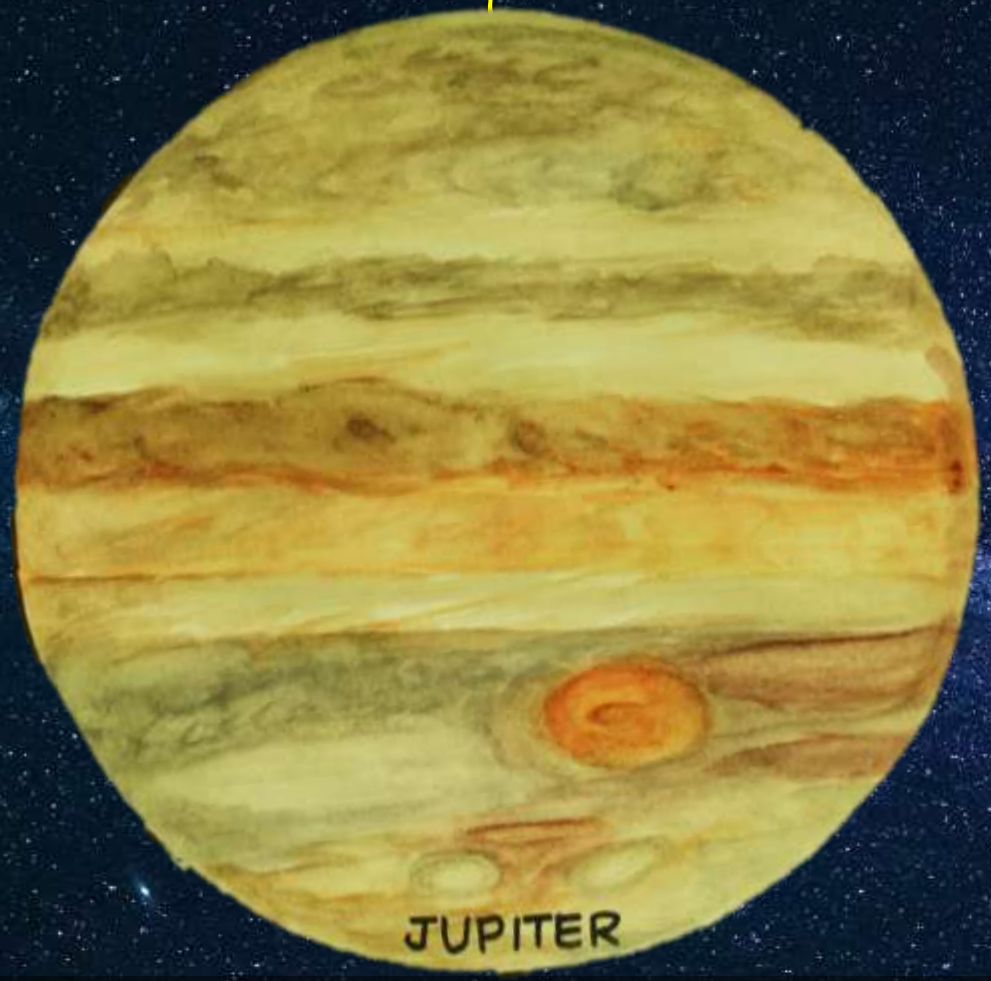
Mass: 6.39 x 10^23 kg

Composed of: Surface is covered with fine dust or iron oxide, beneath it mostly of volcanic basalt rock

Orbital period: 687 days

Mars is the fourth planet from the Sun and the second-smallest planet in the Solar System after Mercury. In English, Mars is the name of Roman god of war and also called 'Red Planet' due to cover of iron oxide dust. It is one of the more explored planets in the Solar System as it is most similar planet to Earth.🚀

Jupiter



Diameter: 139,820 km

Distance from Sun: 776.28 million km

Distance from Earth: 744.71 million km

Mass: 1.898 × 10^27 kg

Composed of: Hydrogen and helium

Orbital period: 12 years

It is the fifth and largest planet of Solar System, and named after Roam god Jupiter. It is the third brightest objects in the night sky after Moon and Venus. The Great Red Spot is a huge storm on Jupiter. It is so large that three Earths could fit inside it. Jupiter has the most largest gravity than any planets.

Saturn

Diameter: 116,460 km

Distance from Sun: 1.4965 billion km

Distance from Earth: 1.4855 billion km

Mass: 5.683 x 10^26 kg

Composed of: hydrogen and helium, but there is also ice of ammonia, ice of methane and water ice!

Orbital period: 29 years

The sixth planet from the Sun in Solar System and second largest after Jupiter. The Saturn is unique due its prominent ring system, which is composed mostly of ice particles, with a smaller amount of rocky debris and dust. This planet has at least 82 moons!!

Uranus

Diameter: 50,724 km

Distance from Sun: 2.9627 billion km

Distance from Earth: 3.1129 billion km

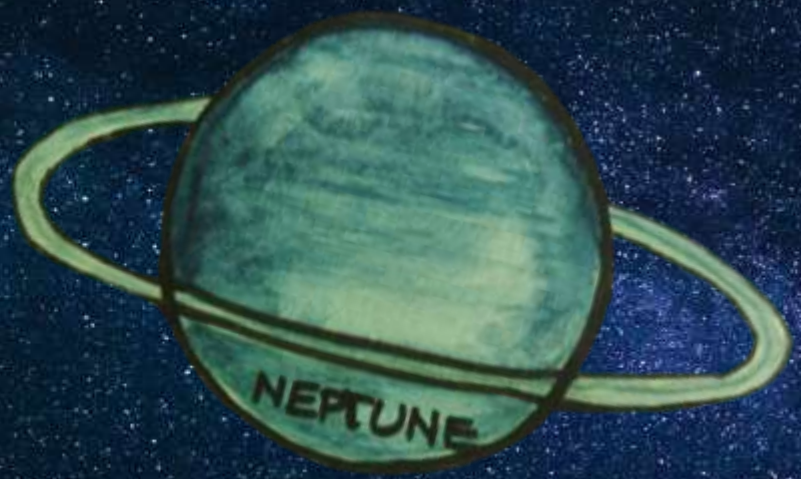
Mass: 8.681 x 10^25 kg

Composed of: Uranus is a frozen, gaseous planet with a molten core. Its atmosphere consists hydrogen (83%), helium (15%) and methane (2%)!

Orbital period: 84 years

It is the seventh planet from the Sun, and fourth-largest planetary mass in the Solar System. Due to its dimness and slow orbit, it was overlooked by ancient observers, but in 1781 it was discovered and classified first time while using telescope! This and following planet is also called 'ice giants' as it has different chemical compositions than 'gas giants'.

Neptune



Diameter: 49,244 km

Distance from Sun: 4.495 billion km

Distance from Earth: about 4.4 billion km

Mass: 1.024 x 10^26 kg

Composed of: Similar to Uranus!

Orbital period: 165 years

Neptune is the eighth and farthest known planet from the Sun in the Solar System. It has 17 time more mass than the Earth, it also has a faint and fragmented ring system called 'arcs' which is discovered in 1984. Neptune has the second largest gravity of any planet

Pluto

(the dwarf or minor planet)

Diameter: 2,376.6 km

Distance from Sun: 7.5 billion km

Distance from Earth: 6 billion km

Mass: 1.31 x 10^22kg

Composed of: mostly ice, perhaps it also has a small rocky core which might contain some metals!

Orbital period: 248 years

This dwarf planet is round and orbits the sun just like the eight major planets of the solar system. Much smaller than a remaining planet, in fact smaller than Moon. It is very, very cold on Pluto. Scientists believe Pluto has -230 to -375 degrees Celsius a colder than the coldest temperature recorded in Antarctica.

Moon

(A natural satellite of Earth)

Diameter: 3,474.2 km

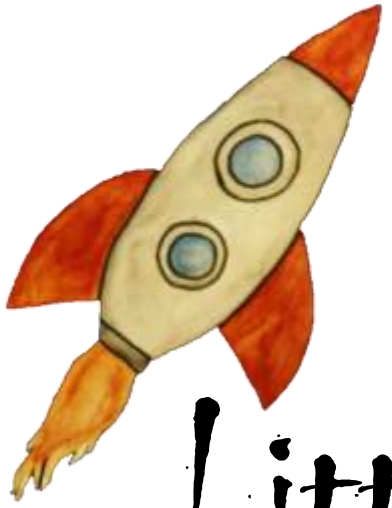
Distance from Earth: 384,400 km

Mass: 7.34 x 10^22 kg

Composed of: Crust contains oxygen, silicon, magnesium, iron, calcium, and aluminum.!

Orbital period to Earth: 27 days

It is the fifth largest moon in the Solar System. The full moon occurs when the moon is on the opposite side of Earth from the sun, so that its face is fully illuminated by the sun's light. The Earth's tides are largely caused by the gravitational pull of the Moon.



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