



Looking up into space (NASA)

Fact 14: The first man made object in space was a manhole cover.

It sounds ridiculous, but it's true.

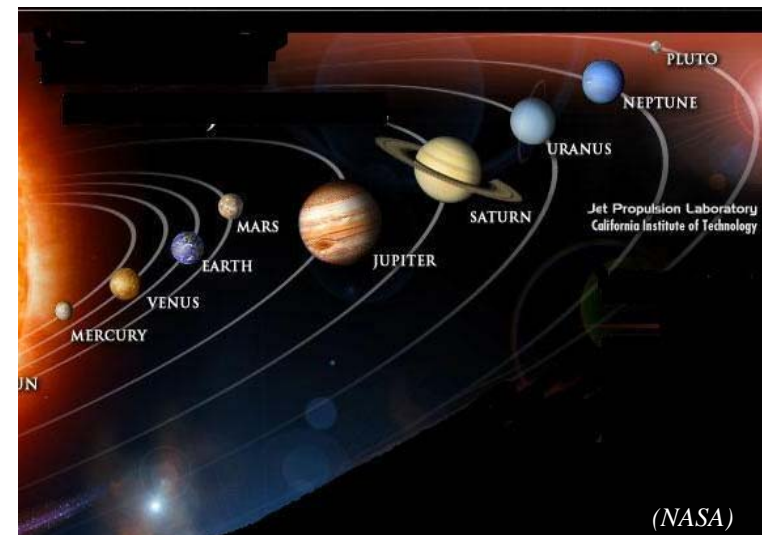
In the early days of nuclear testing, tests were done underground.

Scientists knew there was a lot of energy released in nuclear fission and needed a way to control their testing. Testing was done underground to minimise the impact on the world around us.

In one test, such force was generated that a manhole cover was blasted into the sky. It travelled fast enough that it was able to escape the Earth's atmosphere and propel itself through our solar system.

It is currently out past the orbit of Pluto – and it's still going!

14 FUN FACTS ABOUT THE SOLAR SYSTEM



By Jeannie Meekins



A LearningIsland.org
15 - Minute Book

Editor: Jennifer Robinson

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14 Fun Facts About the Solar System/Jeannie Meekins

Summary: A brief look at the Solar System we live in.

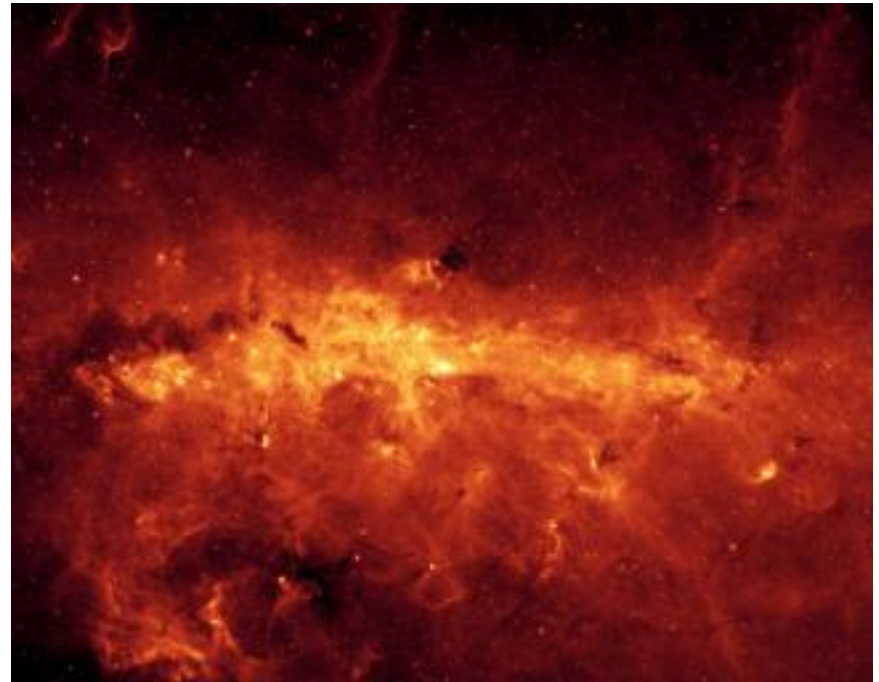
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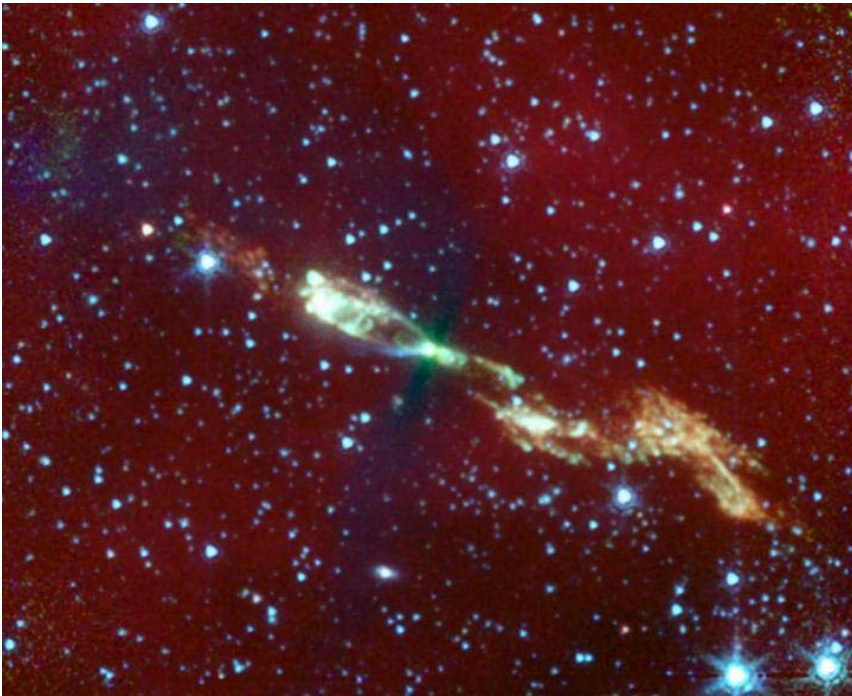
The Milky Way (NASA)

Fact 13: Our Solar System is in orbit around the centre of the Milky Way Galaxy.

We know our solar system orbits our sun, but our sun is also in orbit. Our sun is one of billions of stars in our galaxy. Like everything else, it orbits the centre of the galaxy.

Our galaxy is known as the Milky Way Galaxy. It is about 100,000 light years across and about 20,000 light years thick at its centre.

Our sun, and our solar system, are about 30,000 light years from the centre.



Baby picture of our Solar System (NASA)

Fact 12: Our Solar System is 4.6 billion years old.

We can tell how old an object is by dating it. Scientists can date rocks on Earth by radioactive dating. Rocks have been found that date back to 4.6 billion years ago. This leads scientists to believe that our solar system must be 4.6 billion years old.

This is far too many years for most of us to comprehend.

Comparing our sun to other stars, we know that it is average. We also know that it is about halfway through its life.

In another 4.6 billion years, our sun will die and our solar system will cease to exist

You may think the Solar System consists of the sun and the eight planets that orbit around it. However, there are other things out there. There are comets, moons, asteroids, meteors, dust, ice, rock and much more. Plus there is a whole lot of man made junk. Here are some fun facts about the solar system that you may not know.

Fact 1: The Earth is not the centre of the solar system or of the universe.

It was once thought that the Earth was the centre of the universe. People believed that Earth stayed still in space and the sun, moon, planets and all the stars orbited around it.

In the 3rd Century BC, Aristarchus of Samos suggested a sun-based universe. His theories had the sun and stars as fixed objects and the Earth and planets revolving around the sun in perfect circles.

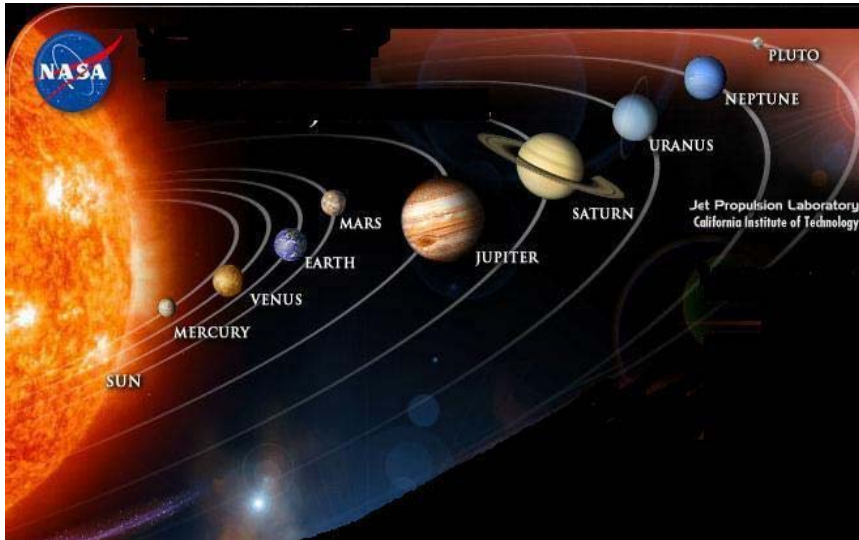
This was generally dismissed and Earth was considered the centre of the universe for many hundreds of years.

In 1543, Nicolaus Copernicus believed that the sun was the centre of the universe. It must be remembered that this was nearly 70 years before the invention of the telescope and people thought that what they could see in the night sky was all that existed.

Copernicus based his theory on the orbits of the planets. His calculations for their orbits did not work if they went around the Earth. However, it did work if they orbited the sun.

Other astronomers took up his work and the facts became indisputable.

We know now that the sun is the centre of our solar system, but even it is far from being the centre of the universe.



The Solar System, including Pluto (NASA/JPL)

Fact 2: There are eight planets in our Solar System.

There are eight planets in our Solar System. They are, in order of distance from the sun, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

The first four planets are rock worlds. The other four are gas giants.

Pluto used to be considered a planet, but it is just too small. It is now classified as a “dwarf planet”.

Beyond Pluto are other objects that orbit our sun. Two more dwarf planets have been found. There may be more. Unless astronomers find anything out there that is really huge, we will continue to have eight major planets in our Solar System.



X-Ray Mosaic of Milky Way taken by the Chandra X-Ray Observatory (NASA)

Fact 11: The sun’s gravity extends halfway to Alpha Centauri.

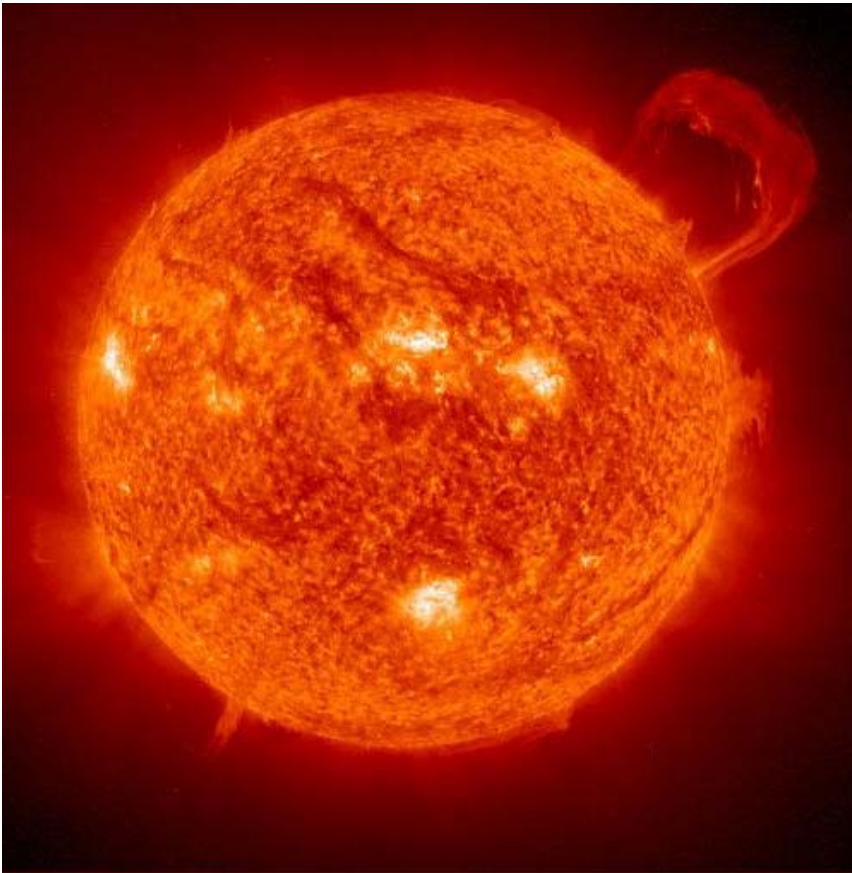
Alpha Centauri is the nearest star system to us. It is a triple system. That means there are actually three stars close together that orbit around each other. The nearest of the three, Proxima Centauri, is only visible from the Southern Hemisphere of Earth.

This star system is 4.3 light years away.

The distances in space are too far to be measured in kilometres. Instead, we use “light years”. We know how fast light travels, so we can work out how far it would travel in a year. We call this a “light year”.

The sun’s light takes eight minutes to reach Earth. It would take 4.3 years to reach Alpha Centauri.

The sun’s gravity reaches about half of this distance. This means that any object floating out there in space can be affected by our sun.

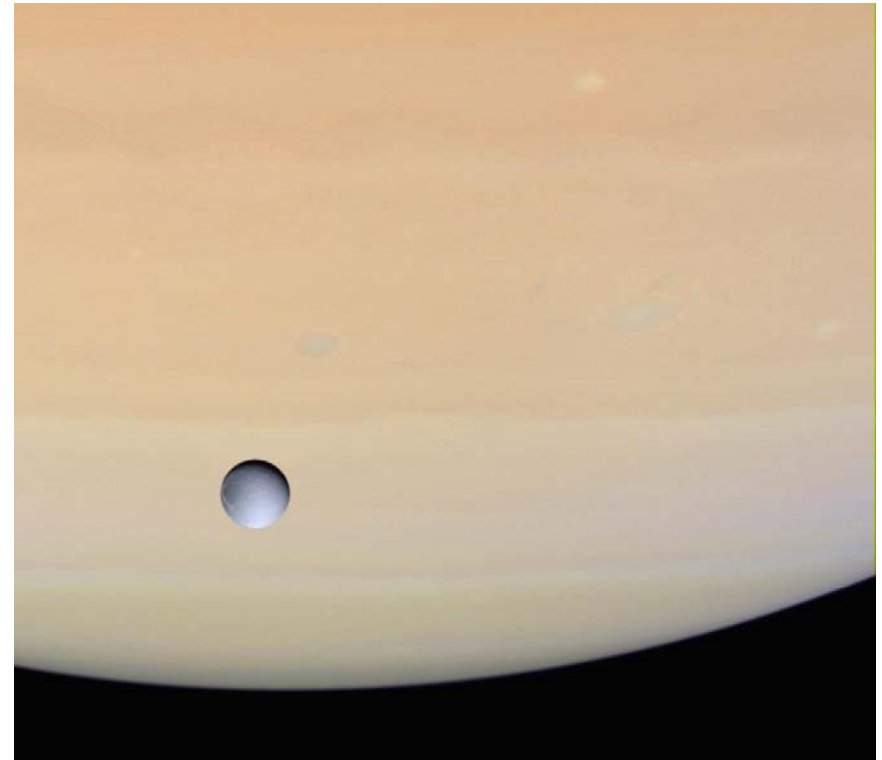


Our Sun (NASA)

Fact 10: Our sun is an average star.

Our sun is pretty average as stars go. It is considered a “yellow dwarf”. Dwarf stars aren’t very big. Around ten percent of stars are also yellow dwarfs.

There are stars out there in our galaxy that are up to 1000 times bigger than our sun. That makes our sun a pretty small star.



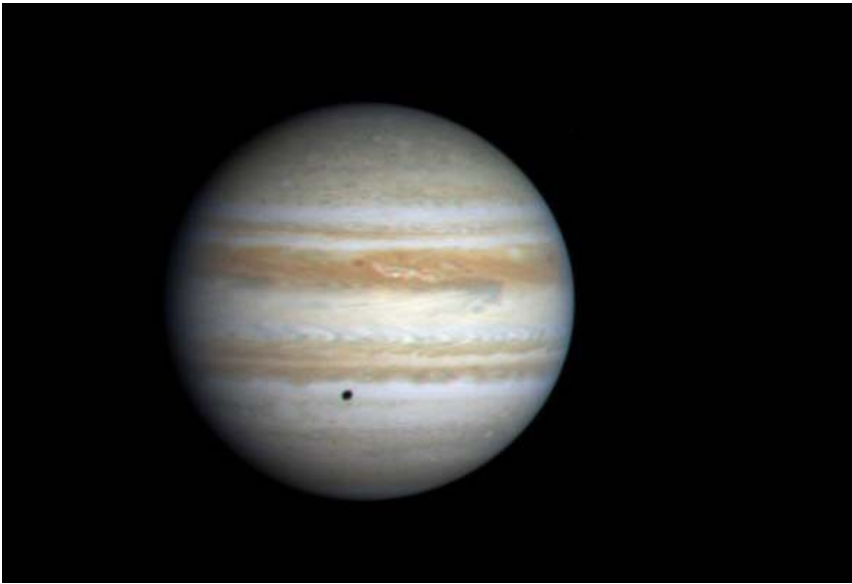
Dione, one of Saturn’s moons, with the planet in the background (NASA)

Fact 3: Most of the planets in our Solar System have moons.

All of the planets, except Mercury and Venus, have moons.

Planets orbit the sun due to the sun’s gravitational pull on them. Moons orbit planets on the same basis. The bigger the planet, the bigger its gravitational pull.

The bigger the planet, the more moons they seem to have. Jupiter, Saturn, Uranus and Neptune are almost like mini solar systems. Uranus has 27 moons that we know of.



The planet Jupiter (NASA)

Fact 4: Jupiter had the potential to become a star.

Jupiter is a gas giant. Scientists believe that it had the potential to become a star.

Everything, no matter how microscopic, has a gravitational attraction. Atoms float around in space for billions of years, attracting other atoms. The more stuff that gets collected, the bigger the object becomes, and the more stuff it can attract.

Gas clouds form. The object becomes denser and hotter, eventually igniting. A star is born.

Jupiter has all the necessary elements to become a star – except the size. As it was forming, it could not collect enough stuff to make it big enough to ignite. Scientists believe that our sun is responsible for this. The closeness of the sun and Jupiter made it impossible for both of them to have become stars.



Comet Kohoutek taken from Skylab (NASA)

Fact 9: Meteor showers occur on a regular basis.

We know that comets orbit the sun. As they near the sun, they begin to melt. The tail of a comet leaves behind a trail of dust and debris. What happens to this? It continues to orbit the sun.

When the Earth crosses the path of debris, friction with our atmosphere causes it to burn, and allows us to see it. This is called a “meteor shower”.

Meteor showers occur on a regular basis. Some may only last for a day, others may last weeks. Most are named for the constellations that they may be seen near.

Here are some approximate dates to look out for:

April 24 – May 20: Eta Aquarid meteor shower, originating from Halley’s Comet,

October 16 - 27: Orionid meteor shower, originating from Halley’s Comet,

November 14 - 21: Leonid meteor shower, originating from Comet Tempel-Tuttle,

December 7 – 17: Geminid meteor shower.

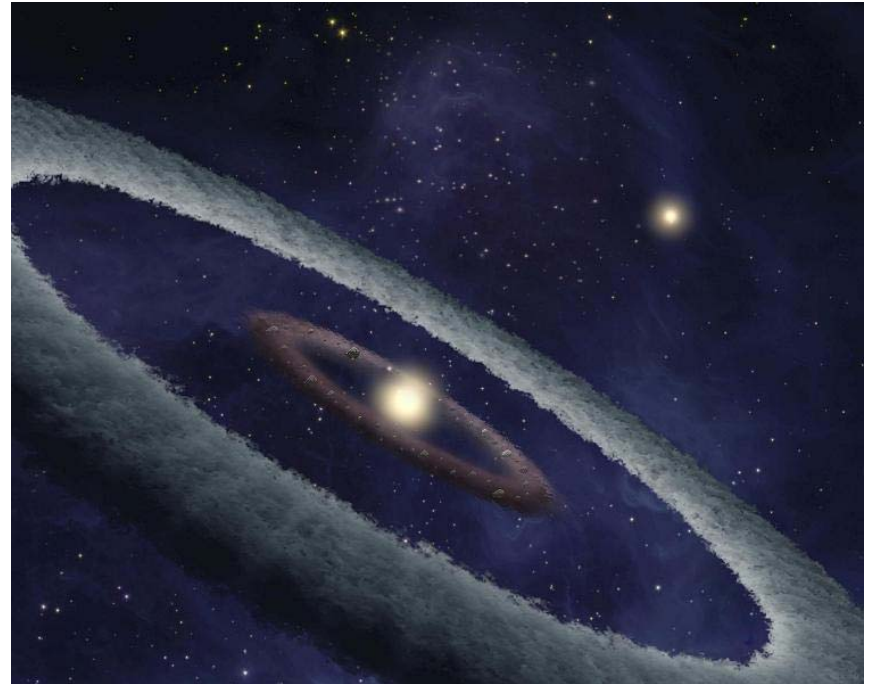


Meteorite in the yard of the Wood House, Quincy, IL (C. Alexander)

Fact 8: Meteors and meteorites are known as shooting stars.

Meteors are small bits of rock that are in space. Sometimes they come into contact with the earth's atmosphere. It is friction with the atmosphere that causes them to burn and allows us to see them.

If such a rock actually reaches the ground, we call it a meteorite. It would need to be about the size of a bowling ball to survive being burnt up completely.



Birth of an Earth-like Planet (Artist concept) (NASA)

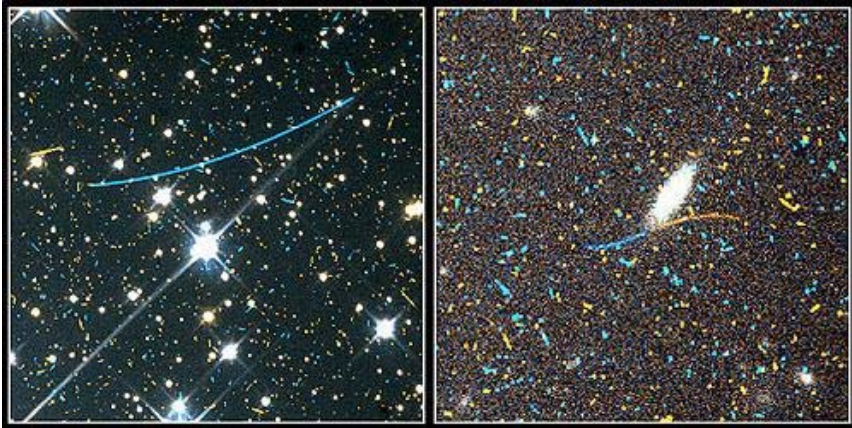
Fact 5: A planet may have tried to form between Mars and Jupiter.

Between Mars and Jupiter is a band of rocky rubble called "The Asteroid Belt".

Another planet may have tried to form in this region. It is thought that this didn't happen because of its location.

In the early days of our solar system everything was still gas, dust and rock. Anything in this area would have been pulled on equally by both the sun and Jupiter. The forces would have constantly torn apart any planet trying to form.

Instead, there is a ring of rocky rubble orbiting our sun.



Hubble tracks the Asteroid Belt (NASA)

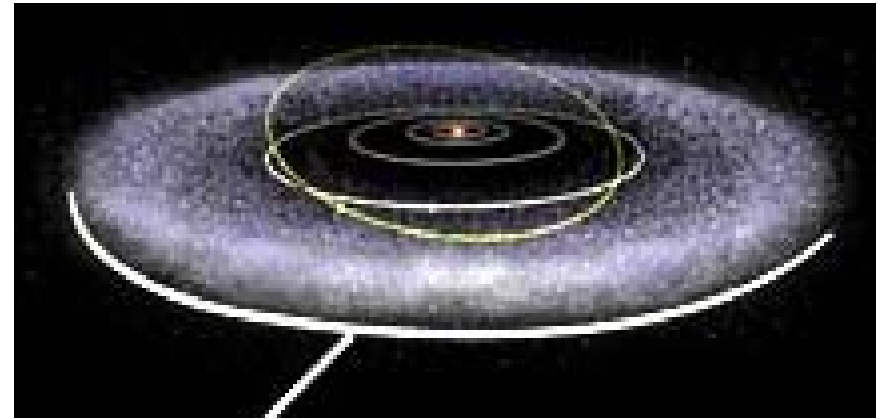
Fact 6: There are more than 50, 000 asteroids in the Asteroid Belt.

Ceres is the largest asteroid in the belt. It was also the first to be discovered. It is about 1,000 kilometres across.

About 35 asteroids are more than 200 kilometres across. Another 1,000 are more than 20 kilometres across.

It is generally accepted that the dinosaurs were wiped out when the Earth was struck by an object only 10 kilometres in size. This means that there are thousands of asteroids – as well as comets, meteors and other objects – that have the potential to devastate our Earth.

You shouldn't worry. Many countries are aware of this. They have set up organisations to search for any such objects that may be on a collision course with Earth – and to figure out ways to prevent this from happening.



The Kuiper Belt (NASA)

Fact 7: Comets come from our Solar System.

Comets are icy bodies that have a rocky core. As they near the sun, the ice begins to melt and a long tail can be seen streaming out behind them.

Way out in space, far beyond Pluto, are regions of gas and dust and space objects that orbit our sun. Like the names suggest, the Oort Cloud is a cloud of debris, whereas the Kuiper Belt stretches through space like our Milky Way. This is where comets come from.

All comets that have been found come from inside our Solar System. We know this because we can track their orbits and predict their returns.

While it is not impossible that a comet may come from outside our Solar System, so far, scientists have not found any.