



PLUTO

The Kuiper Belt lies beyond Neptune. Lots of small, icy objects are here, such as the dwarf planet Pluto.

Now let's travel even further, out of our Solar System and beyond!

NEPTUNE
27 billion km from Earth

URANUS
2.6 billion km from Earth

SATURN
12 billion km from Earth

VOYAGER

Neptune is the furthest planet from the Sun. It takes 165 Earth years for it to orbit the Sun once.

Uranus is an ice giant! It has a rocky centre but most of the planet is an icy mixture.

The twin Voyager space probes were sent to explore the Solar System far away from Earth. They were launched in 1977 and are still sending information back to scientists!

THE SUN
150 million km from Earth

The Sun is a fiery ball at the centre of our Solar System. It's actually a star, and is made up of glowing gases. We need the Sun's heat and light to live on Earth.

NEIL GEHRELS SWIFT OBSERVATORY

Saturn has amazing rings around it, made of pieces of ice and rock. It's also got at least 62 moons!

MERCURY
77 million km from Earth

VENUS
40 million km from Earth

Venus is the closest planet to Earth. One day on Venus is as long as 243 Earth days.

Mercury is the smallest planet in our Solar System. It's closest to the Sun so it gets as hot as 430°C in the daytime.

MARS
54.6 million km from Earth

Earth's other neighbouring planet is Mars, but it is further away from the Sun. This cold, rocky planet has two tiny moons.

If you travel even further from the Sun, you'll pass Jupiter. Jupiter is the largest planet in our Solar System - it's so big, all the other planets could fit inside it!

JUPITER
568 million km from Earth

That big red spot is a huge storm in the planet's atmosphere, about the size of Earth.

THE MOON

Can you see a flag? The Moon is the only place in the universe that humans have stepped on, apart from Earth.

When astronauts landed on the Moon in 1969, Neil Armstrong was the first human to walk on its surface. Look closely - you might still spot his footprints in the dust!

Scientists think the Moon formed about 4.5 billion years ago, when a huge object hit Earth and knocked part of it into space. Eventually this chunk became our Moon.

The Moon doesn't produce light but it does reflect the Sun's light - that's how we see it shining in the night sky from Earth.

380,000 km above Earth

It takes about 28 days for the Moon to orbit Earth.

These astronauts are doing a spacewalk outside the space station to make repairs and test new equipment.

On a spacewalk, astronauts wear spacesuits so they can breathe oxygen. They're attached to the space station by a tether, like a rope, so they won't float away into space!

Cosmonauts are trained by the Russian Space Agency. Astronauts are trained in other parts of the world, such as the United States.

400 km above Earth

Let's follow the capsule and take a look at the space station...

Welcome to the International Space Station! This spacecraft orbits Earth every 90 minutes.

Astronauts and cosmonauts live here for months, doing scientific experiments and finding out more about what it's like to live in space.

The Soyuz capsule was blasted into space by a rocket. When the rocket reached about 40 kilometres, four rocket boosters broke off and fell back to Earth.

The rest of the rocket took the capsule to 200 kilometres above the ground before it also fell away.

Something is roaring up towards you - it's a Soyuz capsule taking astronauts to the International Space Station!

SPY SATELLITE

Look out! Here comes a satellite!

Scientists use satellites to watch weather patterns and see how Earth's environment is changing. Some are used for spying!

One day you might be able to fly to the edge of outer space and look down on Earth. Flying this high, you would start to float inside the spacecraft!

WEATHER SATELLITE

This satellite was launched into space by a rocket and now travels over the North and South poles as it orbits our planet. It takes about 90 minutes for it to travel around Earth.

SPACE PLANE

100 km above Earth

You're about to cross the Karman line. This imaginary line marks the start of space!

85 km above Earth
THE THERMOSPHERE STARTS HERE

SOYUZ ROCKET

This rocket is blasting a Soyuz capsule into space. Soon the rocket will fall away and then the astronauts inside will travel on to the International Space Station in the capsule.

Hang on! What's a balloon doing up this high? This is no ordinary balloon - it's a weather balloon, full of helium gas. The instruments it carries send information about the weather in the stratosphere down to scientists on Earth.

50 km above Earth
THE MESOSPHERE STARTS HERE

We've reached the ozone layer! Ozone is important because it absorbs powerful rays from the sun. Those rays could be harmful if they all reached us down on the ground.

WEATHER BALLOON

20 km above Earth

10 km above Earth
THE STRATOSPHERE STARTS HERE

As you enter the stratosphere, there's not enough oxygen for people to breathe.

Take a look through the windows on this aeroplane!

Airliners fly around the world at speeds of around 800 kilometres per hour. The biggest airliners can carry more than 800 people, sitting on two levels.

For the first ten kilometres you travel upwards, you are in the lowest part of the atmosphere. It's called the TROPOSPHERE.

There's a helipad on top of this building for helicopters to land safely. An air ambulance is flying in to land.

When the helicopter's rotor blades spin around, they lift the helicopter up to fly. The tail rotor stops the helicopter itself from spinning around.

At the top of this skyscraper there's a lightning conductor. This metal rod protects the tall building from a lightning strike.

The rod leads to a cable that sends the lightning to the ground safely.

Window cleaners travel up the outside of tall buildings on a cradle like a swing. This crane is lifting materials to build a shiny new skyscraper.

Tilt your head back and look up at the skyscraper around you. Peer through the windows and you'll see all the people busy working inside!

Just above your head are the signs that hold the city together. Drivers and pedestrians need sign posts to show them which way to go. Street signs tell you when you're in the right place.

As you go about your daily life, there is so much going on around you. It's easy to stop and stare at the sights in the busy city street. But how often do you look upwards? So much more is going on in the sky above you!

Let's take a look...