

The sun

The sun: introduction

The sun is the largest object in the solar system. It provides other planets with heat depending on their distance from the sun. It is the star located at the centre of the galaxy. The heat of the sun provides life on other planets (example: life on Earth).

Measurements of the sun

Diameter: 870 000 miles

Surface temperature: 9 900 F

Core temperature: 25 000 000 F

The suns surface

The close up surface of the sun shows great tongues or flares of fire coming out of the giant object.



Close up of the suns surface.

Photosphere

The photosphere is the surface of the sun. It is not solid like on Earth and Mars but like Jupiter the surface is more like a sea of gas about 500 km thick. At the photosphere the gas becomes transparent which allows for light to escape into space. The temperature ranges from 8500 degrees at the bottom of the photosphere to 4200 degrees at the top with a average of 5500 degrees.

Chromosphere

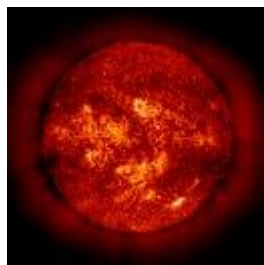
Above the photosphere is the chromosphere which is a thin and dense layer of Hydrogen and Helium gases, which is roughly about 5000 km thick. At the top of the photosphere the temperature it is more than 500,000 degrees.

Sunspots

With a close enough look at the suns surface we will see certain dark spots. These sunspots last about few hours for many weeks. These sunspots stretch up to 100,000 km on the surface. They are viewed as black spots on the surface

Corona

Above the chromosphere with a extend of millions of kilometres into space is the corona. The corona has the temperature of 3000,000 degrees. The corona is very faint due to the atmosphere of gas is extremely thin. The corona is 100 times hotter than the photosphere.



The suns atmosphere

The suns atmosphere is so bright, even from Earth it is difficult to visualise the sun with the naked eye. It is the overpowering brightness of the photosphere which prevents us from seeing the suns surface.

The solar atmosphere consists of two main regions, the chromosphere and the corona.

These regions are often rocked by massive eruptions and explosions called solar flares and prominences. The suns atmosphere has been evaporating at the rate of millions of tonnes per second.

The atmosphere above the temperature is a thin layer about 2000 km.

Consistency of elements

The sun is made up of elements which gives the sun it's shape, temperature and mass.

The elements consist of

- Hydrogen: 73.46%
- Helium: 24.85%
- Oxygen: 0.77%
- Carbon: 0.29%
- Iron: 0.16%
- Sulfur: 0.12%
- Neon: 0.12%
- Nitrogen: 0.09%
- Silicon: 0.07%
- Magnesium: 0.05%

Solar oscillations

The solar oscillations are the photosphere moving up and down in complex patterns of vibration.

Most of the solar oscillations are caused by the sound waves below the surface convective zone that is trapped. The mappings of these vibrations allows scientists to work out the suns internal structure.

Some of the solar oscillations can be caused by sunquakes. These are the shock waves that spread out from the edges of turbulent circulations of hot gases called convective cells. The energy released is equal to the explosions of 1.2 billion tonnes of high explosives.

Effects of a eclipse

The eclipse is when the sun is blocked enough and Earth doesn't receive any light.

The moon has it's orbiting pattern over the Earth and sometimes this course can orbit directly in front of the sun and in terms of visual from the surface the moon is bigger and blocks out the light of the sun.



