

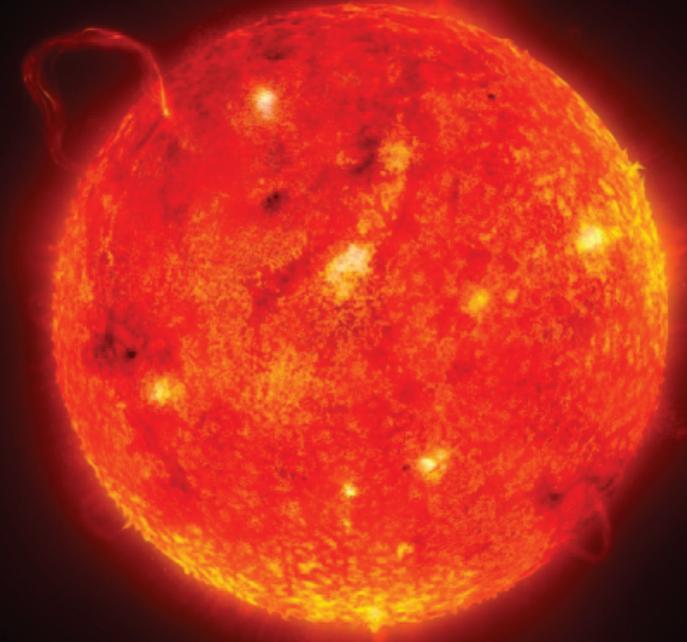
What Protects Our Planet From Solar Radiation?

Solar Radiation

The Sun supplies us with light and it provides us with the warmth our planet needs to support life. It constantly emits radiation that bombards our planet all day, every day.

The radiation that the Sun emits would scorch us if we didn't have protection! Our atmosphere acts like a protective blanket around our planet. The gases in our atmosphere reflect some of the rays of the Sun, sending them back into space.

Sometimes the Sun send out bursts of radiation. These bursts are called solar flares. At other times, there may be a slight reduction in the Sun's radiation. These changes in the amount of solar radiation our planet receives can lead to slight decreases or increases in the temperature on the Earth.



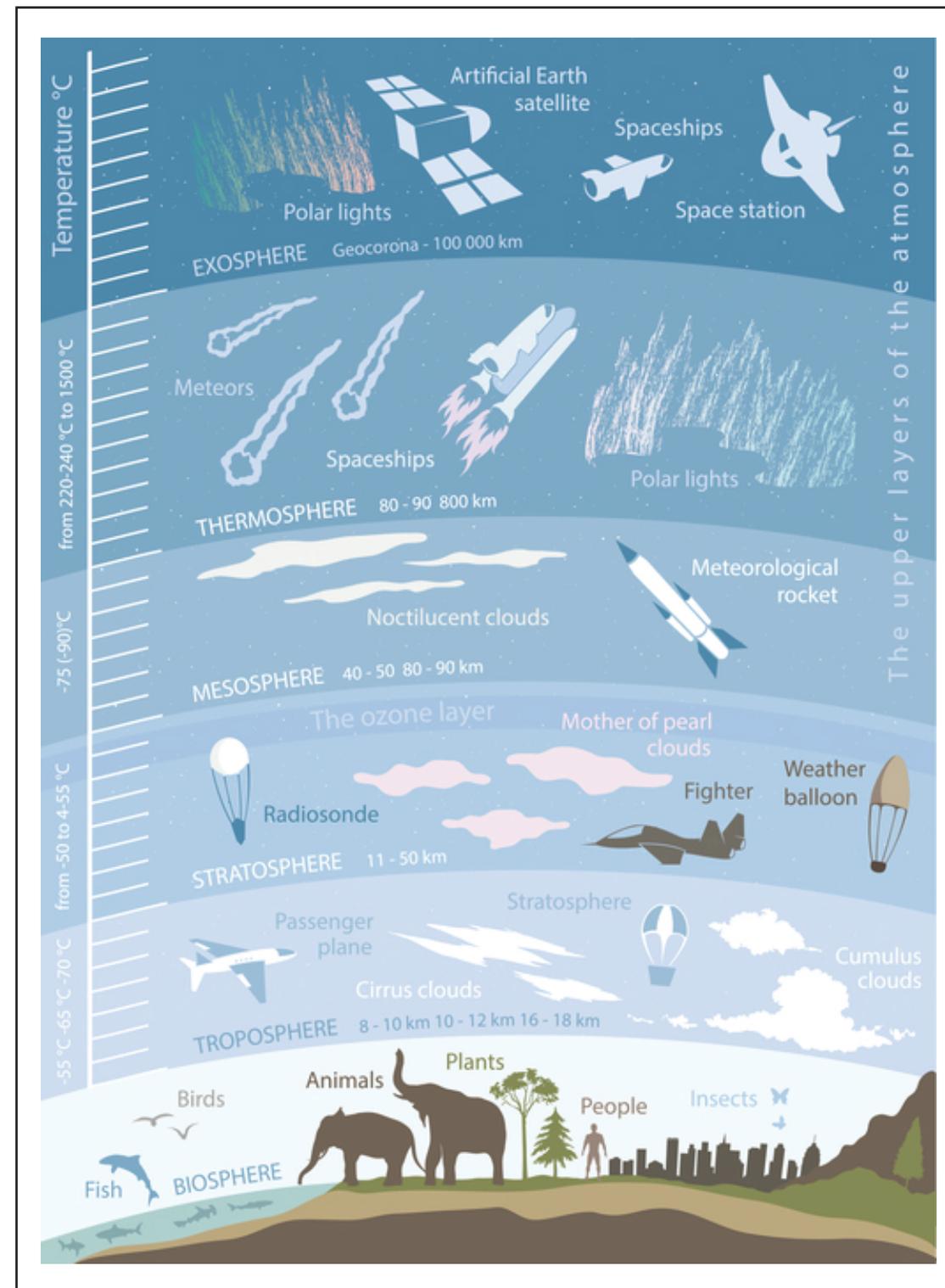
Our atmosphere protects us from the harmful effects of the Sun's radiation.

The Atmosphere

The atmosphere is made of gases that surround our planet in layers. The layer that is closest to our planet's surface is the air we breathe. It is made of 78% nitrogen, 21% oxygen. The remaining 1% contains small amounts of other gases such as argon and carbon dioxide as well as water vapour.

Some layers of the atmosphere contain gases that protect us from dangerous radiation from the Sun. The particles of gas in the ozone layer, for example, help reflect radiation away from our planet.

Our atmosphere acts like a blanket around our planet that holds in the heat. It keeps our planet at the right temperature to support life. Like a glass greenhouse.

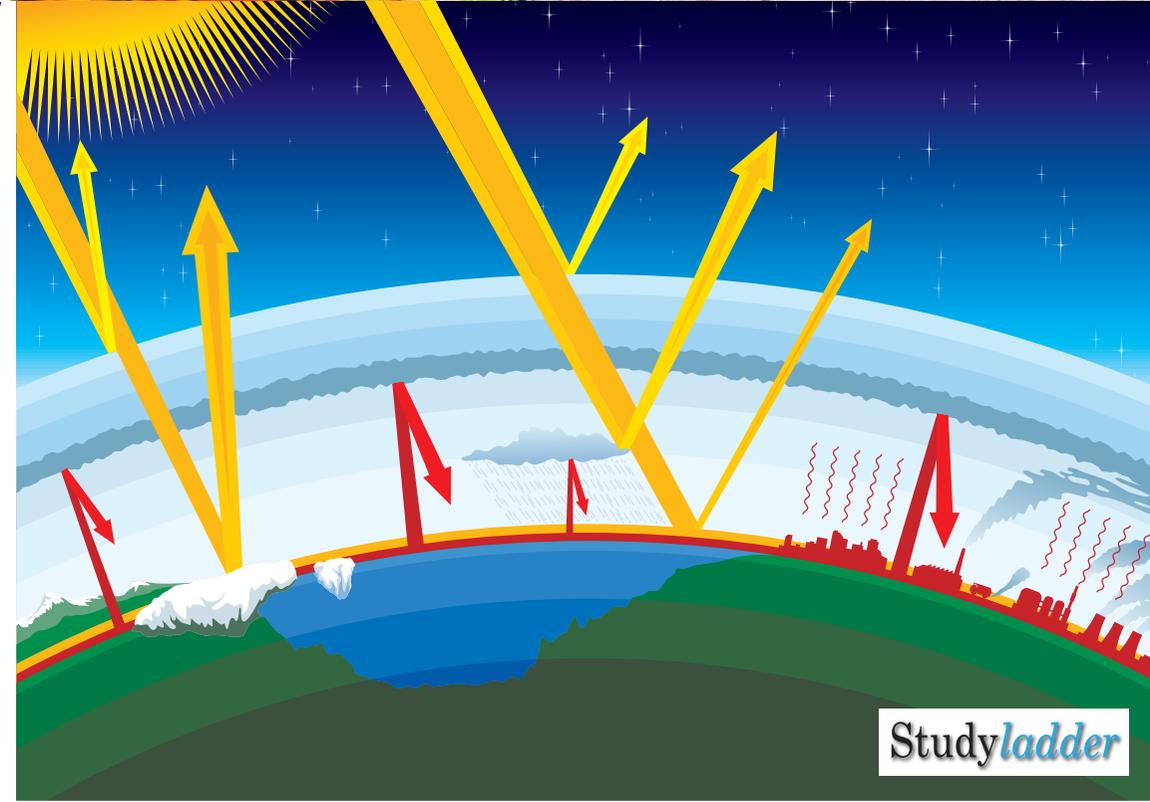


The Greenhouse Effect

A garden greenhouse creates warmer conditions for plants in cool environments. Warm air is trapped inside by its structure. Our atmosphere acts like a greenhouse, keeping our planet warm.

The Sun's radiation travels through the atmosphere to the Earth's surface. Some of this radiation is absorbed by plants, animals, the air and soil. Some radiation is reflected from by the Earth's surface back into space.

When gases such as carbon dioxide (CO₂) and ozone are released into the air they collect in our atmosphere. These gases stop reflected radiation from escaping back into space through the atmosphere. The result is a layer of warmth around our planet that is important for our survival.



Greenhouse Gases

Greenhouse gases occur naturally in our atmosphere. They absorb energy that is reflected back from the Earth's surface, stopping it from escaping into space. This trapped heat keeps our Earth at the right temperature. Greenhouse gases include:

Water
Vapour

Carbon
Dioxide

Methane

Nitrous
Oxide

Ozone

Which greenhouse gases do you think are produced in these examples?

evaporated
water

exhaled by
animals

rotting
vegetation

bacteria in
soil & ocean

lightning
discharge

Methane

**Carbon
Dioxide**

Ozone

**Nitrous
Oxide**

**Water
Vapour**