B01
Meteorology
Atmosphere

Highest Skydive

Topics

1. Earth’s Atmosphere
2. Troposphere
3. Stratosphere
4. Mesosphere
5. Thermosphere
6. Exosphere
7. Summary

Earth’s Atmosphere

Earth’s Atmosphere

“Atmos” means gas.

“Sphere” means ball.

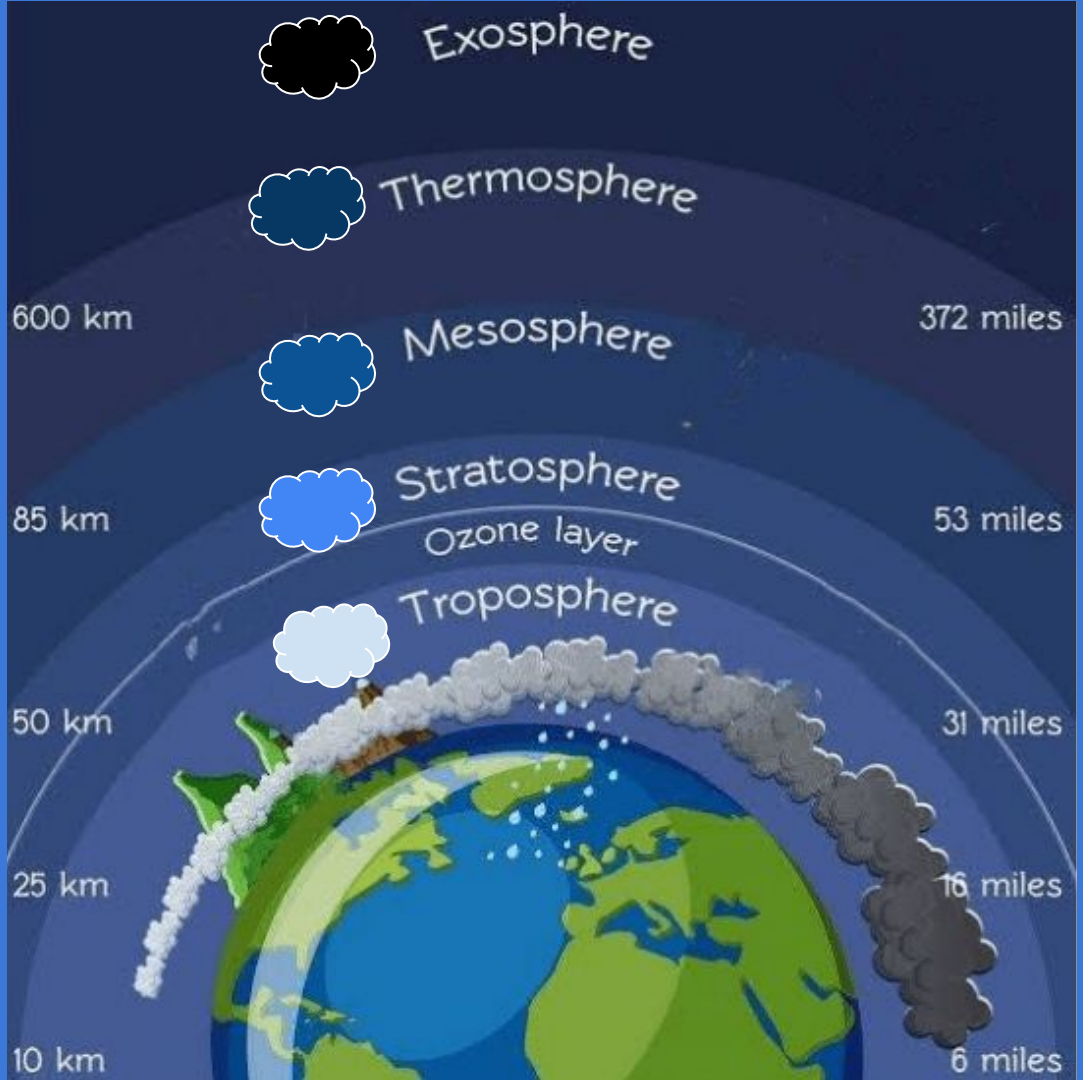
“Atmosphere” means

Gas Ball.

Earth’s Atmosphere

If Earth was the size of a football then the atmosphere or air would be only as thick as a sheet of paper.

Higher
Less Air



Lower
More Air

The Five Atmospheric Layers

Troposphere

Troposphere 0 - 12 km

Tropo means turning. The turning ball.

This is where we live. It has the most air for us to breathe.

This is where the clouds are and all the rain, wind and snow comes from.

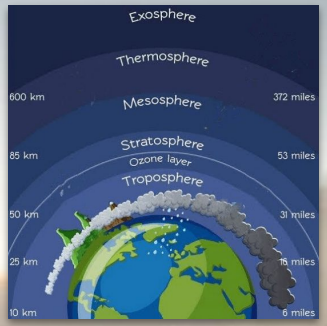
Troposphere 0 - 12 km

The highest mountain on Earth is called Mount Everest.

It is 8.849 km high.

The troposphere is around 10-12 km thick. 3 km higher.

The top of Everest is close to the edge of the troposphere.



Troposphere Climbing to the top

Stratosphere

Stratosphere 12 - 50 km

Strato means layer. The layer ball.

The highest ever skydive was from the stratosphere.

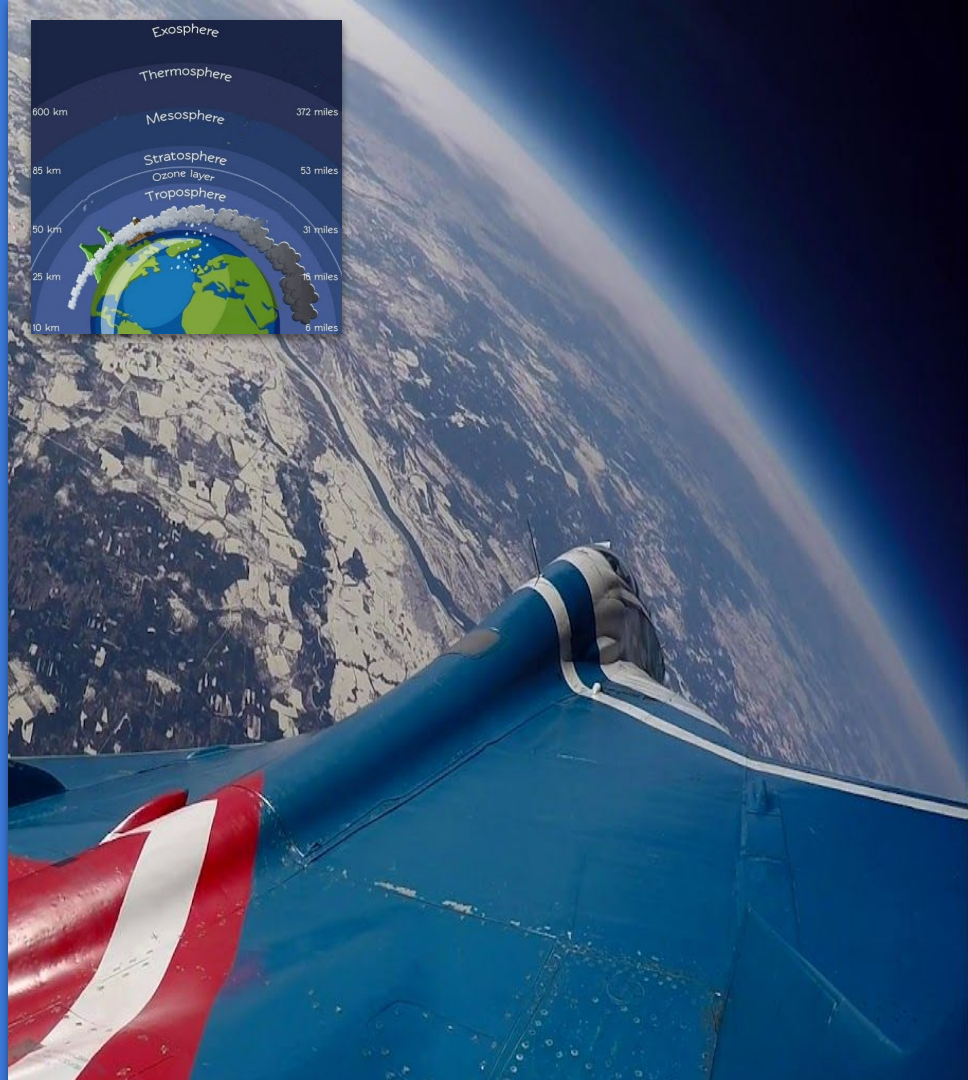
Felix Baumgartner jumped from a balloon from almost 42 km up in the sky, near the top of the stratosphere.

Stratosphere 12 - 50 km

The air is very thin and cold.

You cannot breathe outside of the plane.

Military aircraft can fly in the low Stratosphere above the clouds very fast, faster than sound.



Stratosphere Supersonic Flight

Mesosphere

Mesosphere 50 - 80 km

Meso means middle.

The middle ball.

This is where meteors can be seen as they fall through and burn up.

They are usually all burned up before they reach the Stratosphere.

Mesosphere Meteors

Mesosphere Meteor Shower

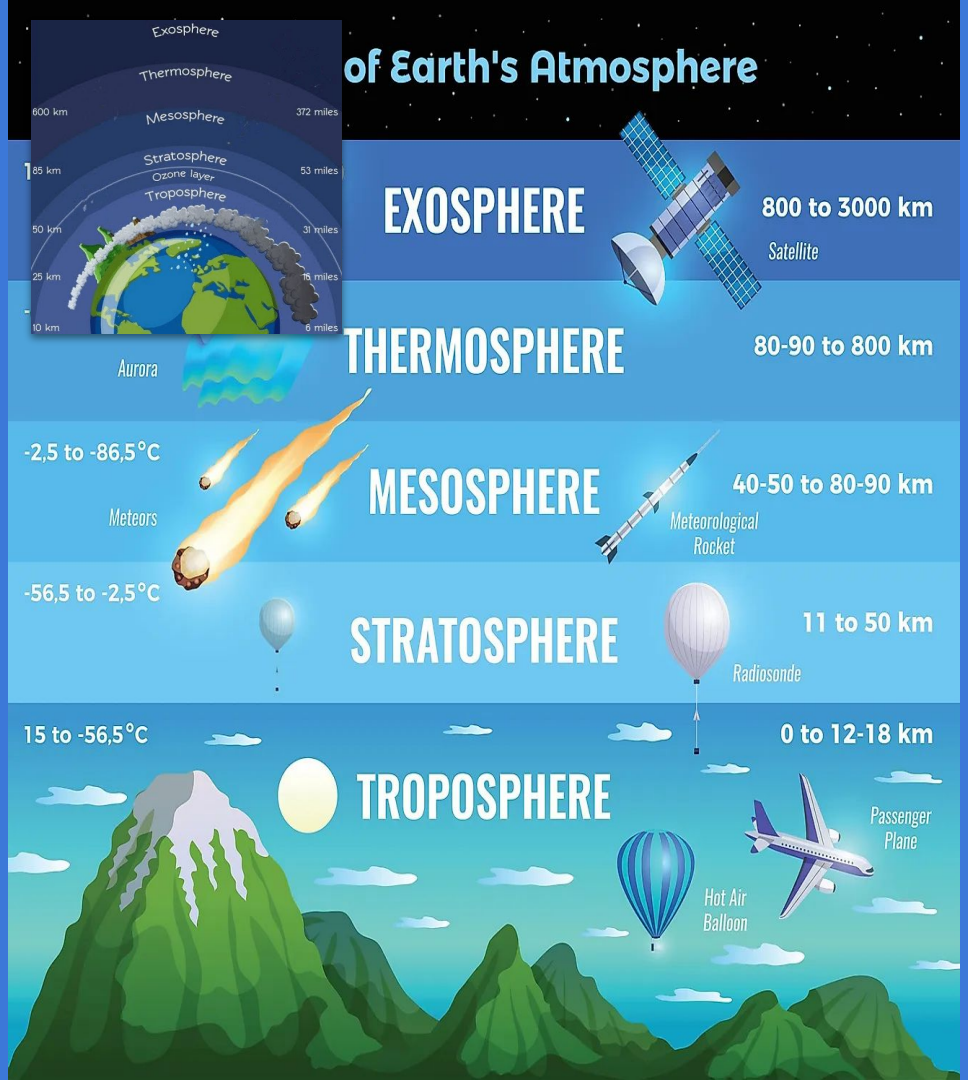
Thermosphere

Thermosphere 80 - 800 km

Thermo means hot. The hot ball.

As you climb higher the air gets colder until you reach the Thermosphere.

From here it starts to get hotter because there is so little air to protect you from the hot Sun.



Thermosphere 80 - 800 km

Strange light patterns appear in the thermosphere near the north pole and the south pole.

In the north these lights are called the Northern Lights or the Aurora Borealis.

In the south they are the Aurora Australis.

Northern Lights
In the Arctic
“Aurora Borealis”

Southern Lights
In the Antarctic
“Aurora Australis”

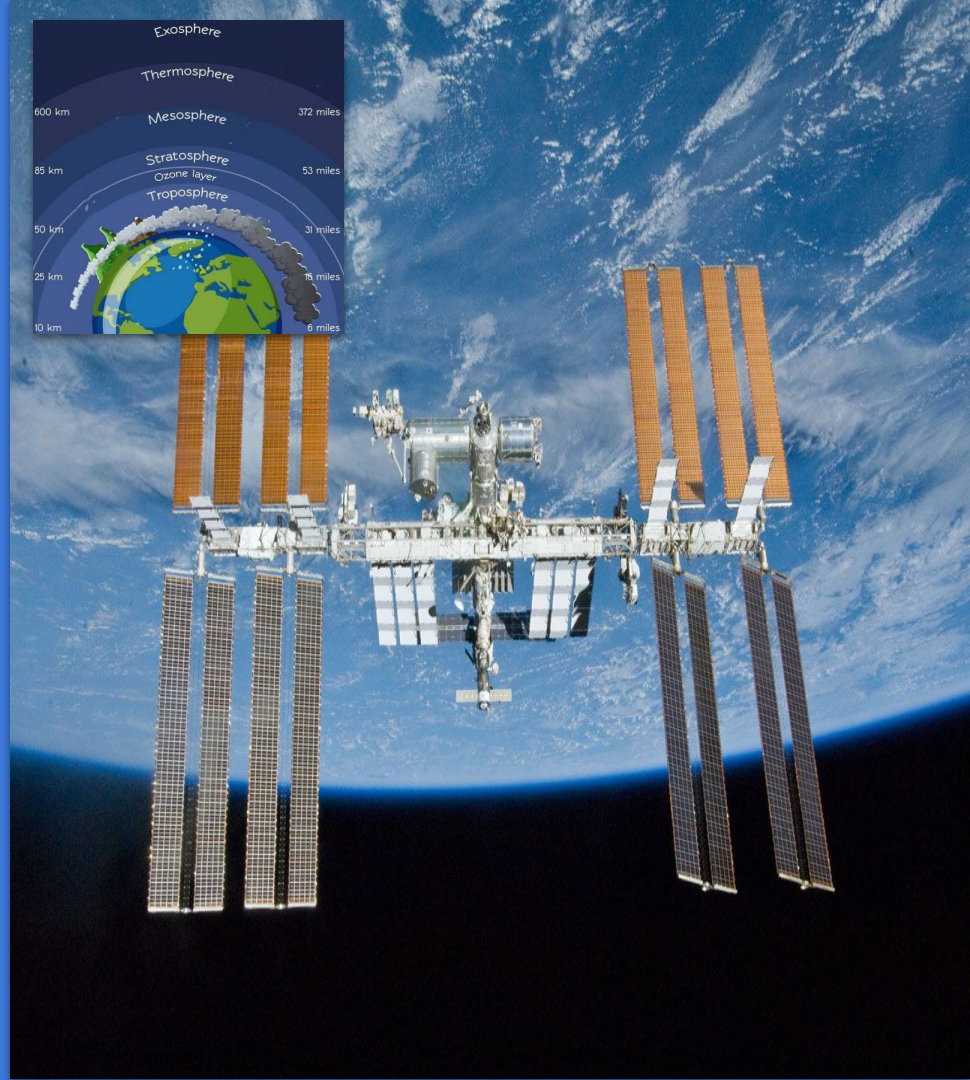
Thermosphere Aurora

Thermosphere 80 - 800 km

The International Space Station (ISS) is also in the thermosphere.

It orbits the Earth at a height of around 400 km above the ground.

You can see the aurora from the International Space Station (ISS).



Thermosphere from the ISS

Thermosphere 80 - 800 km

There are over 7,000 manmade satellites in our atmosphere. Low orbit satellites orbit in the thermosphere.

We use them for taking photos of Earth, communications, TV and conducting scientific experiments.

Exosphere

Exosphere

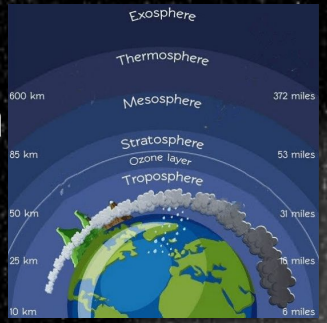
800 - 10,000 km

Exo means outer.

Exit means way out.

The air is very very thin here, almost no air at all.

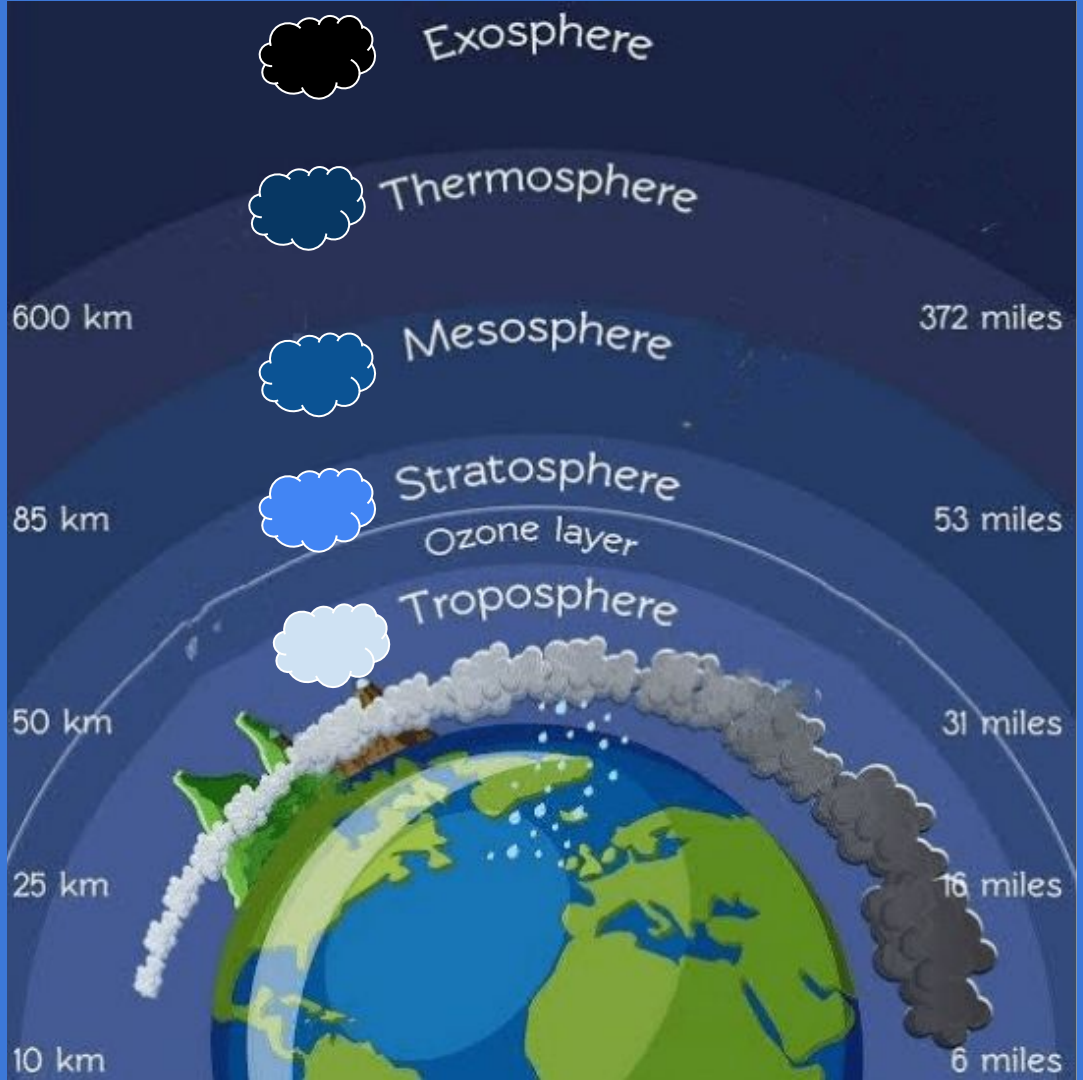
High orbit satellites orbit in the exosphere.



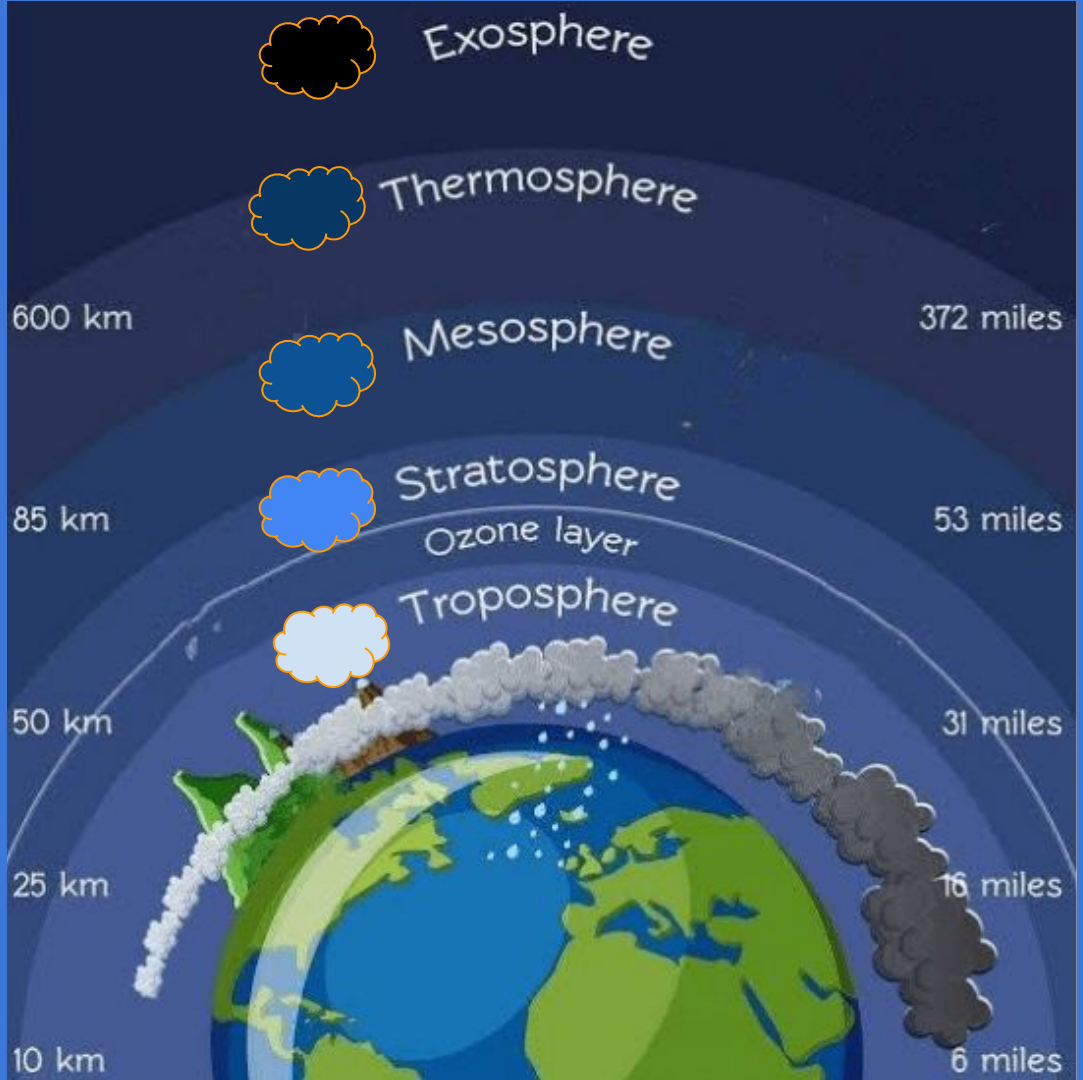
Exosphere Satellites (NOT TO SCALE)

Summary

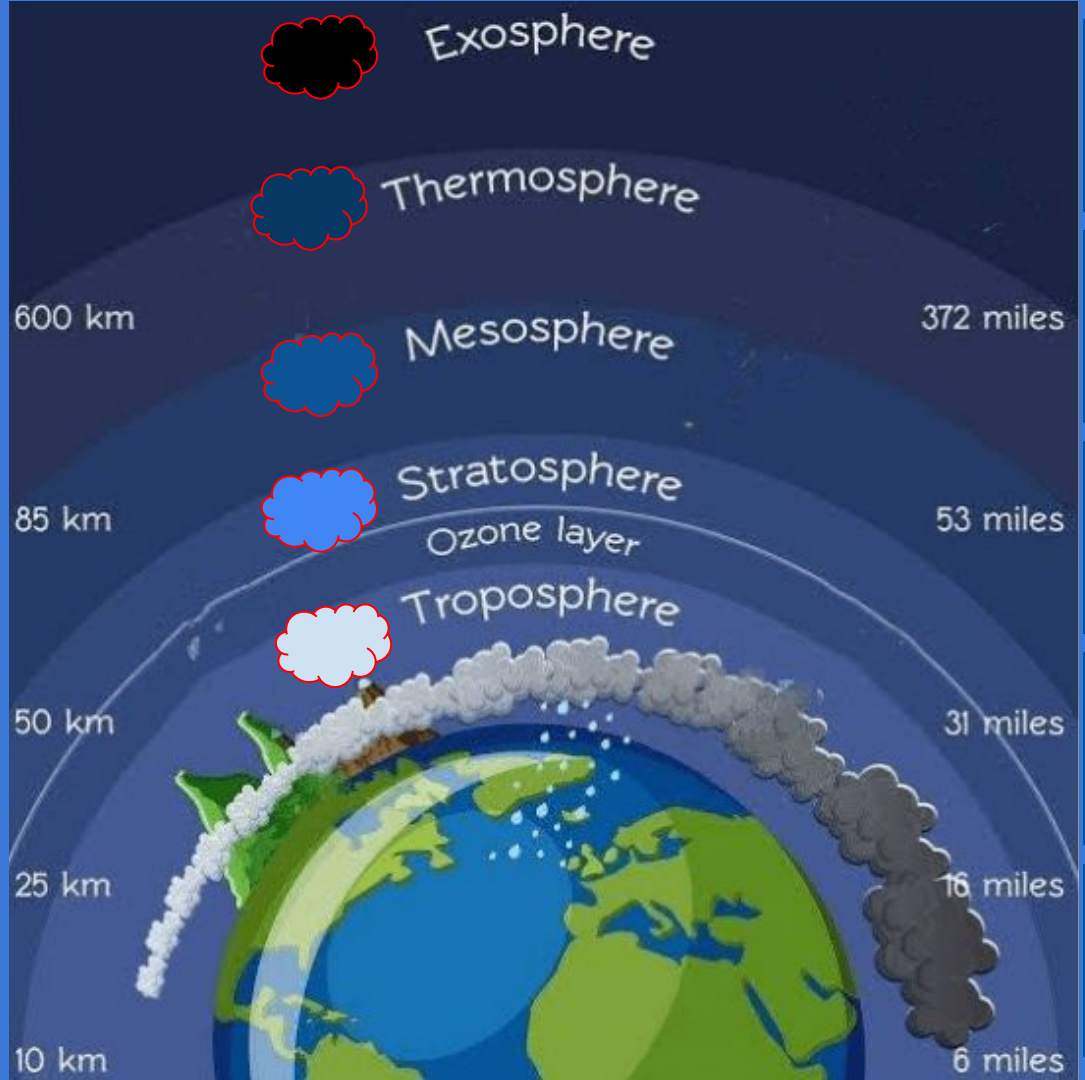
Say the names.

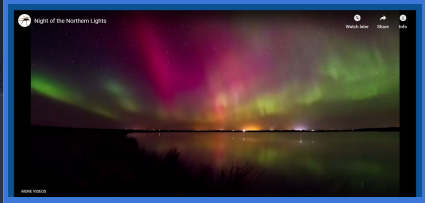


What do the names mean?



Can you describe something we can see in each layer?





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