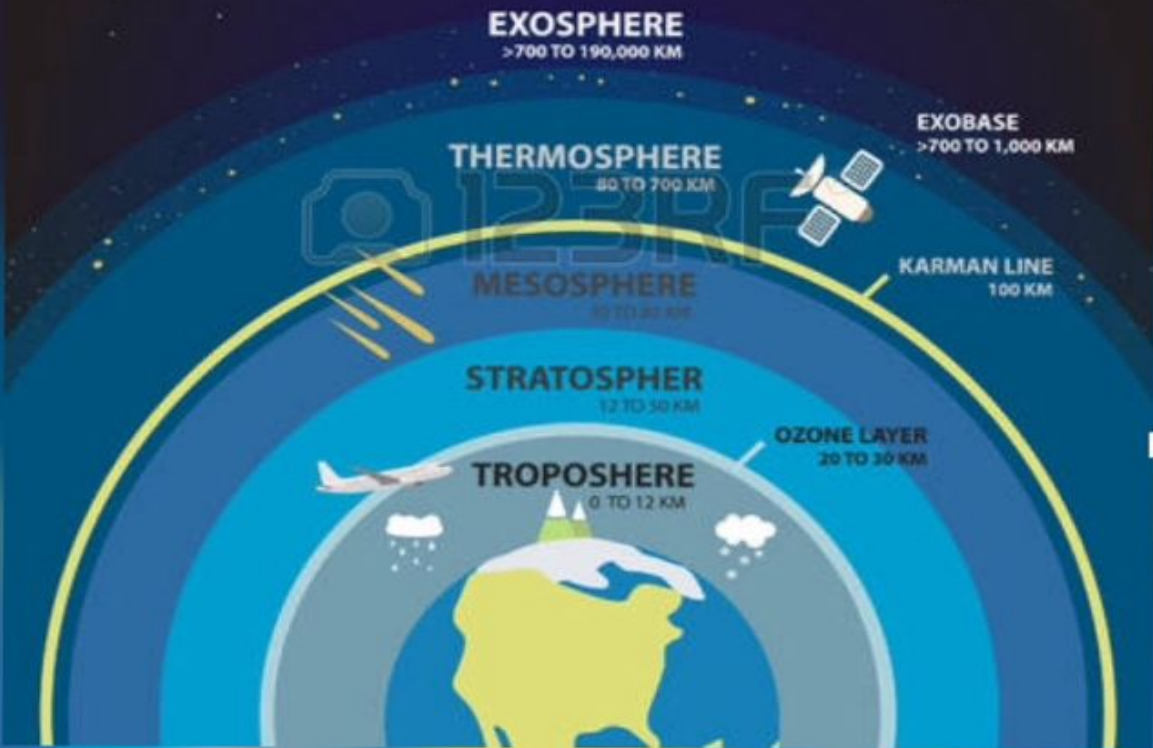


I.C. Laureana

ATMOSPHERE



Clil the atmosphere



SCUOLA: *SECONDARIA DI PRIMO GRADO SERRATA*

CLASSE: *1A*

ALLIEVI: *5 RAGAZZI*

ETA': *11/12 ANNI*

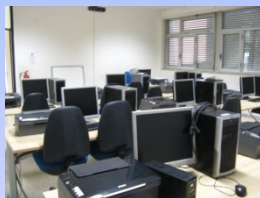
CLIMA: *DISTESO E COLLABORATIVO*



◦Tempi

10 ore

◦Luoghi

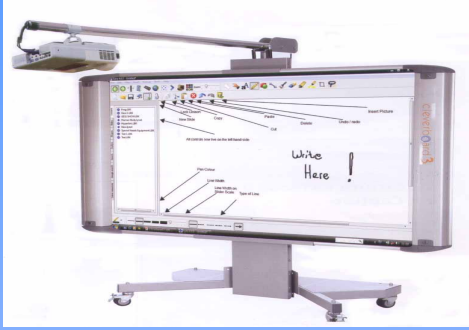


Aula e
Laboratorio
multimediale



METODOLOGIA

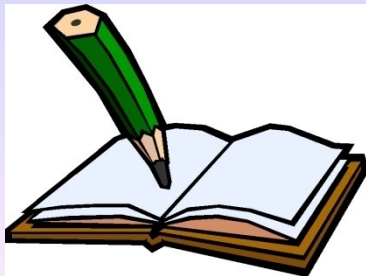
- Cooperative learning
- Didattica
laboratoriale
- Problem solving
- Brainstorming

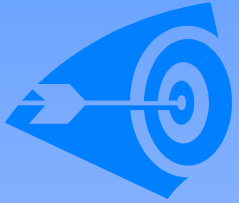


MEDIATORI DIDATTICI

LIM, per illustrare presentazioni multimediali, per navigare in rete, per visionare brevi audiovisivi.

Quaderni, cartoncini, fogli, cartelloni, raccoglitori, penne, pennarelli, gessetti, schede predisposte dall'insegnante o elaborate dalla classe





CONTENT OBJECTIVES:

With the completion of the Unit students will be able to

1. Learn what the atmosphere is and what it is made of
2. Recognize the atmosphere characteristics
3. Know the layers of the atmosphere
4. Explain the characteristics of each layer
5. Understand the importance of the atmosphere existence for living things

ELEMENTS INVOLVED IN THE ATMOSPHERE:



- **Planet Earth, air, layer of gases, life**
- Gravity, ultraviolet solar radiation, greenhouse effect, diurnal temperature variation, living things
- Nitrogen, oxygen, argon, carbon dioxide, water vapor, noble gases.
- Troposphere, stratosphere, mesosphere, thermosphere, ionosphere, exosphere.

COMPETENZE EUROPEE COINVOLTE

Comunicazione nella madrelingua	Saper utilizzare efficacemente la lingua in funzione comunicativa Saper comprendere un testo
Comunicazione nella lingua inglese	Saper utilizzare efficacemente la lingua in funzione comunicativa Saper comprendere un testo
Competenza di base in campo scientifico e tecnologico	Saper applicare il pensiero scientifico in contesti reali e con scopi concreti
Competenza digitale	Saper utilizzare gli strumenti tecnologici per imparare, reperire informazioni, comunicare
Imparare ad imparare	Saper apprendere attivamente i nuovi contenuti e applicare concretamente le abilità già apprese e acquisite.
Competenze sociali e civiche	Saper nel lavoro di gruppo, rispettare le diversità e utilizzare le capacità di ciascuno per pervenire ad un elaborato unico con uno scopo comune
Senso di iniziativa e di imprenditorialità	Saper pianificare e gestire il compito da realizzare



LANGUAGE OBJECTIVES:

Students will

1. Know key vocabulary (atmosphere, air, Earth, air,...).
2. Group new words into the semantic family of atmosphere related words. Ozone layer, photosynthesis, gravity, ultraviolet solar radiation, greenhouse effect,...
3. Use present simple to describe, define and explain the characteristics and the layers of the atmosphere
4. Use effectively zero conditional sentences for cause/ effect processes.
5. Use correctly the structures:
 - It protects life by...it prevents from...
 - it is made up of.../ it's used by...
6. Use and sequence ordinal numbers

ATTIVITA'

MODI

Brainstorming	Input
Immagini stimolo sull'atmosfera, per suscitare il coinvolgimento di tutti gli alunni	Comprendere il livello di conoscenze della classe circa l'atmosfera e la sua composizione
Video lezione con Doctor Binocs	Far acquisire nuove conoscenze in maniera accattivante
Consolidare le nuove conoscenze con il visual learning, attraverso una mappa concettuale realizzata con la LIM insieme alla classe	Facilitare la comprensione e la memorizzazione, l'organizzazione del pensiero e dell'apprendimento significativo
Lavoro in piccoli gruppi	Costruzione di un POWERPOINT
Canzone su youtube e poesie sull'atmosfera	Memorizzare meglio la terminologia scientifica dei contenuti proposti; Migliorare l'esposizione orale e l'uso specifico del lessico della disciplina
Verifiche	Valutare la padronanza dei saperi

WHAT TO LEARN?

- What is the atmosphere: planet Earth, layer of gases, living things, gravity, air, life on Earth.
- The composition of the atmosphere: nitrogen, oxygen, argon, carbon dioxide, water vapor, noble gases.
- The layers of the atmosphere: troposphere, stratosphere, mesosphere, thermosphere, exosphere.

COSA IMPARIAMO?



- Cos'è l'atmosfera: pianeta Terra, strato di gas, esseri viventi, aria, vita, gravità.
- La composizione dell'atmosfera: azoto, ossigeno, argon, anidride carbonica, vapore acqueo, gas nobili.
- Gli strati dell'atmosfera: troposfera, stratosfera, mesosfera, termosfera, esosfera.

- **Lesson one: “The atmosphere”**
- **What is the atmosphere**
- The atmosphere of Earth is the layer of gases, commonly known as air, that surrounds the planet Earth and is retained by Earth's gravity.
- The atmosphere of Earth protects life on Earth by absorbing ultraviolet solar radiation, warming the surface through heat retention (greenhouse effect), and reducing temperature extremes between day and night (the diurnal temperature variation).



Lesson one: “The atmosphere”

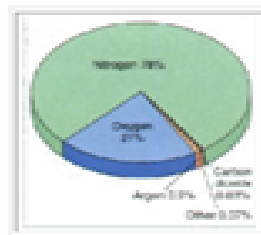
- What is the atmosphere

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The atmosphere of Earth protects life on Earth by absorbing ultraviolet solar radiation, warming the surface through heat retention (greenhouse effect), and reducing temperature extremes between day and night (the diurnal temperature variation).

- Composition

1) **Nitrogen (N₂)** - 78% - It dilutes oxygen and prevents rapid burning at the earth's surface. Living things need it to make proteins. Nitrogen cannot be used directly from the air and cannot be used directly from the living beings. The Nitrogen Cycle is nature's way of supplying the needed nitrogen for living things.]



2) **Oxygen (O₂)** - 21% - It's used by all living things. Essential for respiration. It is necessary for combustion or burning.

3) **Argon (Ar)** - 0.9% –It's a noble gas that the human uses for light bulbs

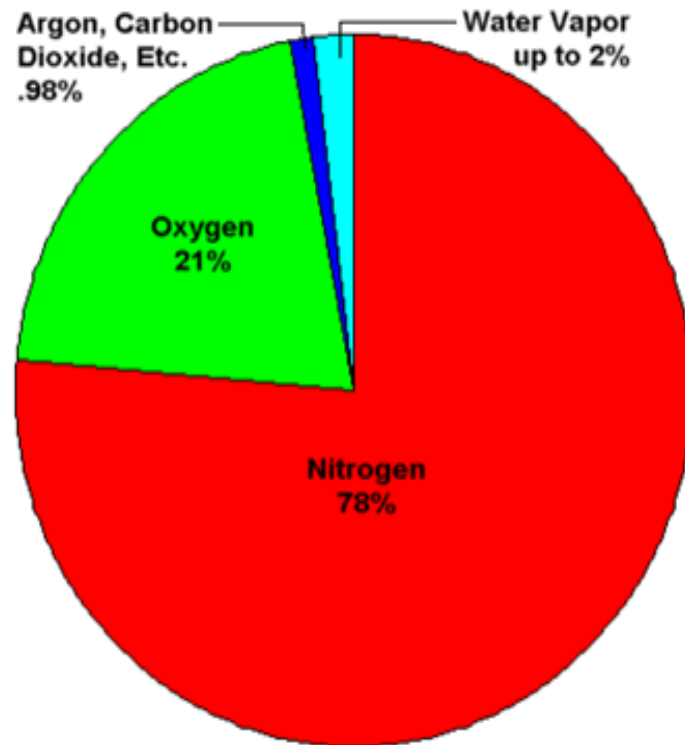
4) **Carbon Dioxide (CO₂)** - 0.03% - Plants use it to make oxygen, through the process of photosynthesis. It Acts as a blanket and prevents the escape of heat into outer space.

Scientists are afraid that the burning of fossil fuels such as coal and oil are adding more carbon dioxide to the atmosphere.

5) **Water Vapor (H₂O)** - 0.0 to 4.0% - It's essential for life processes and also prevents heat loss from the earth.

6) **Noble gases traces** – they are gases which are inert, that do not easily react, found only in very small amounts. They include neon (Ne), helium (He), krypton (Kr), and xenon (Xe).

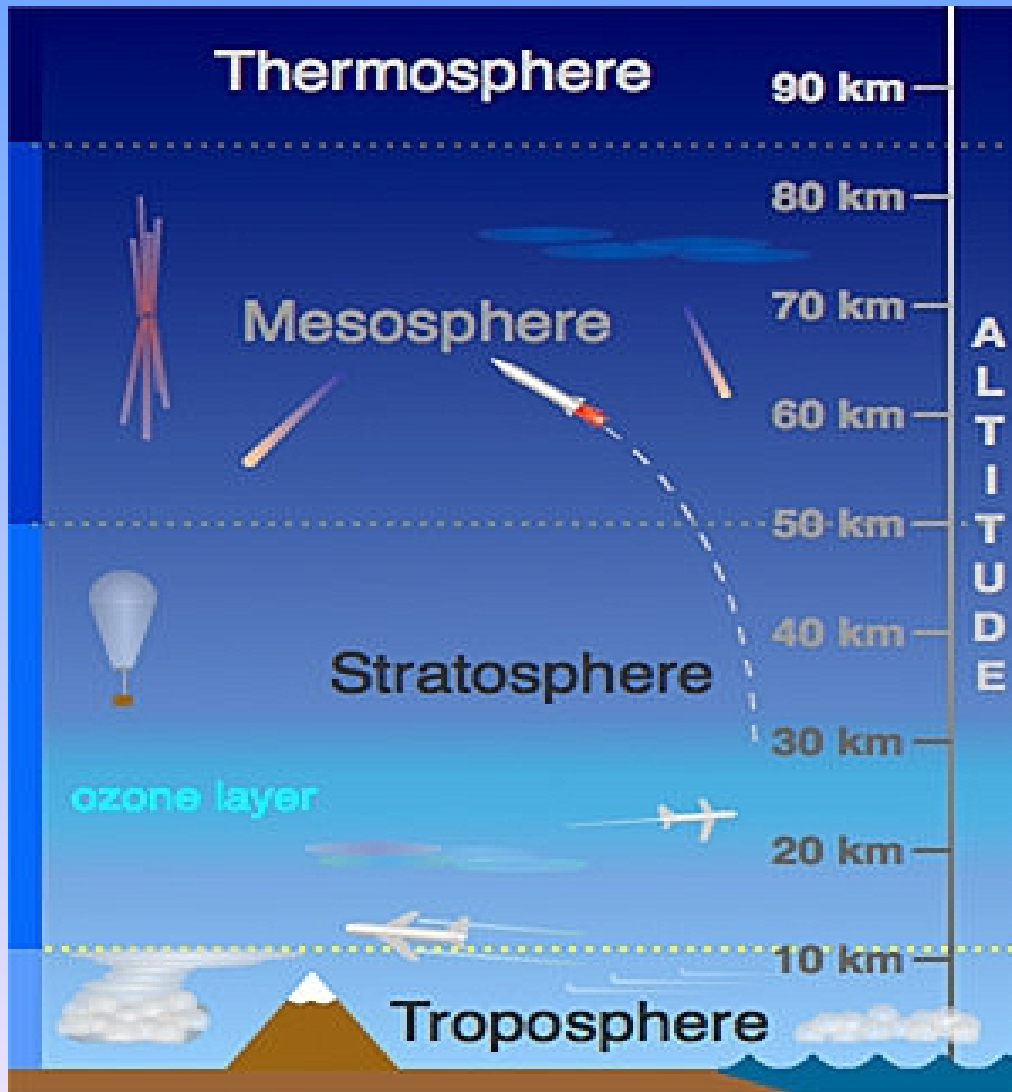
Oxygen is NOT the main gas in our atmosphere, but it's nitrogen. The following chart shows the proportion of various gases in the atmosphere. You will see that the percentages actually can be more than 100%. This is because the percentage of water vapor in the atmosphere can range from as little as a trace to more than 2%, depending on geographic location, season, etc.



Layers of Earth's Atmosphere

The Earth's atmosphere is divided up into 5 major layers:

- **Exosphere** - The last layer and the thinnest. It goes all the way to 10,000 km above the Earth's surface.
- **Thermosphere** - The thermosphere is next and the air is very thin here. Temperatures can get extremely hot in the thermosphere.
- **Mesosphere** - The mesosphere covers the next 50 miles beyond the stratosphere. This is where most meteors burn up upon entry. The coldest place on Earth is at the top of the mesosphere.
- **Stratosphere** - The stratosphere extends for the next 32 miles after the troposphere. Unlike the troposphere the stratosphere gets its heat by the Ozone Layer absorbing radiation from the sun. As a result, it gets warmer the further away you get from the Earth. Weather balloons go as high as the stratosphere.
- **Troposphere** - The troposphere is the layer next to the ground or surface of the Earth. It covers around 30,000-50,000 feet high. This is where we live and even where planes fly. Around 80% of the mass of the atmosphere is in the troposphere. The troposphere is heated by the surface of the Earth.



Tom Glazer
Weather Songs

from Ballads For The Age Of Science by Hy Zaret and Lou Singer





Layers Of Atmosphere | The Dr. Binocs Show |
Educational Videos For Kids

•POEM: THE ATMOSPHERE

On the ground is the troposphere

The lower atmosphere

Weather happens here!

The higher you go, the colder you get

So pack a jumper, don't forget!

Next you have the stratosphere

Ends at 35 miles up in the atmosphere

35-50 miles above what comes into mind

The mesosphere is what I think you'll find!

Right in the middle where air is sparse

Further away is the thermosphere

It's hotter they say!

And then on top of the Earth's face

Comes the exosphere touching space!

Ripping away from the Earth's fragile face

The five layers covering the Earth's sphere

Making up our own atmosphere!



Earth Science: Atmosphere

Test Quiz

Questions on this quiz are based on information from [Earth Science: Atmosphere](#).

1) What is the atmosphere?

- It is another name for outer space
- The first layer of the Earth's crust
- A layer of gases that surround the Earth
- The name of a trendy restaurant
- All of the above

2) Which of the following best describes the Earth's atmosphere?

- An empty space
- A big blanket absorbing the Sun's heat
- A thin towel that does very little to protect the Earth
- A large cloud that generates the Earth's electromagnetic field
- None of the above

3) What is the ozone layer?

- The layer of the Earth below the crust
- The layer of the atmosphere that we breathe
- A portion of the Earth's atmosphere that protects the Earth from radiation
- All of the above
- None of the Above

4) What two elements make up the majority of the Earth's atmosphere?

- Oxygen and hydrogen
- Hydrogen and nitrogen
- Oxygen and helium
- Carbon and oxygen
- Nitrogen and oxygen

5) What layer of the Earth's atmosphere is where most meteors burn up upon entry?

- Exosphere
- Thermosphere
- Mesosphere
- Stratosphere
- Troposphere

6) What layer of the Earth's atmosphere is the outermost layer and where the atmosphere is the thinnest?

- Exosphere
- Thermosphere
- Mesosphere
- Stratosphere
- Troposphere

7) What layer of the Earth's atmosphere is the layer next to the Earth?

- Exosphere
- Thermosphere
- Mesosphere
- Stratosphere
- Troposphere

8) What layer of the Earth's atmosphere is heated by the Sun hitting the ozone layer?

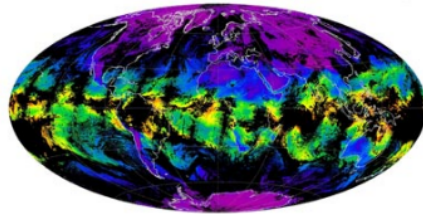
- Exosphere
- Thermosphere
- Mesosphere
- Stratosphere
- Troposphere

9) What layer of the Earth's atmosphere has a very thin atmosphere, but can also become very hot?

- Exosphere
- Thermosphere
- Mesosphere
- Stratosphere
- Troposphere

Atmosphere Practice Quiz

21 Questions | By Marquart



Atmosphere Quizzes & Trivia

Please take this quiz to help you study for the atmosphere quiz.

Start



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[Atmosphere Practice Quiz](#)

[Layers Of The Atmosphere](#)

[Atmosphere Mccurdy](#)

[Earth's Atmosphere - Chapter 1](#)

[Heating The Atmosphere Vocab Quiz](#)

[Atmosphere Quiz](#)

Questions and Answers

1. What is the atmospheric layer closest to the ground?

Discuss

- A. Mesosphere
- B. Troposphere
- C. Thermosphere
- D. Stratosphere

2. What is the second atmospheric layer from the ground?

- A. Thermosphere
- B. Stratosphere
- C. Troposphere
- D. Mesosphere

3. What is the third atmospheric layer from the ground?

- A. Troposphere
- B. Thermosphere
- C. Stratosphere
- D. Mesosphere

4. What is the fourth atmospheric layer from the ground?

Discuss

- A. Thermosphere
- B. Mesosphere
- C. Troposphere
- D. Stratosphere

5. What layer of the atmosphere has the aurora borealis in it?

- A. Stratosphere
- B. Mesosphere
- C. Troposphere
- D. Thermosphere

6. What layer has the ozone layer in it?

- A. Mesosphere
- B. Troposphere
- C. Thermosphere
- D. Stratosphere

7. What does the ozone layer do?

Discuss

- A. It protects us from meteors
- B. It protects us from violent solar flares
- C. It protects us from ultra violet radiation
- D. It helps us breathe

8. What layer protects us by burning up most meteors?

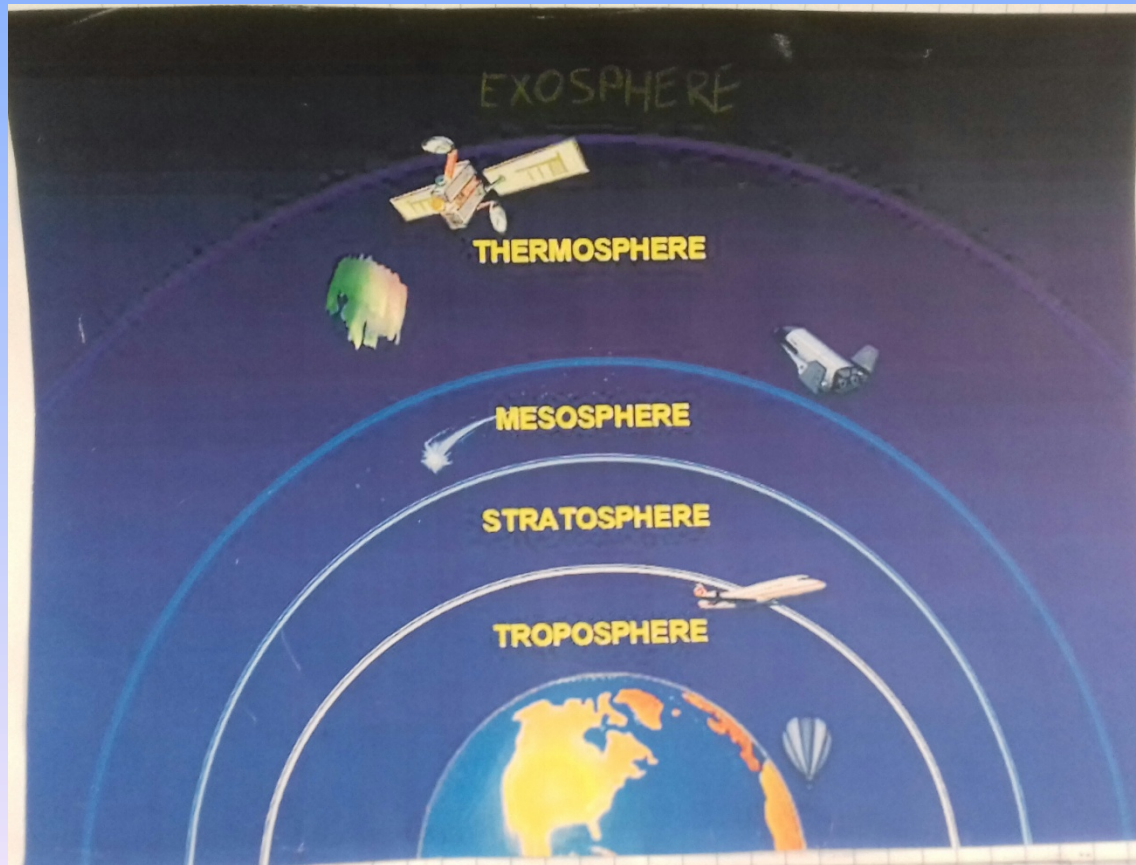
Discuss

- A. Stratosphere
- B. Mesosphere
- C. Troposphere
- D. Thermosphere

9. What layer does most weather occur in?

- A. Troposphere
- B. Stratosphere
- C. Thermosphere
- D. Mesosphere

The Earth's atmosphere



Lesson one: "The atmosphere"

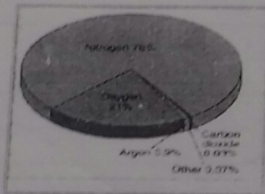
• What is the atmosphere

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The atmosphere of Earth protects life on Earth by absorbing ultraviolet solar radiation, warming the surface through heat retention (greenhouse effect), and reducing temperature extremes between day and night (the diurnal temperature variation).

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- 2) **Oxygen (O₂)** - 21% - It's used by all living things. Essential for respiration. It is necessary for combustion or burning.
- 3) **Argon (Ar)** - 0.9% - It's a noble gas that the human uses for light bulbs
- 4) **Carbon Dioxide (CO₂)** - 0.03% - Plants use it to make oxygen, through the process of photosynthesis. It Acts as a blanket and prevents the escape of heat into outer space. Scientists are afraid that the burning of fossil fuels such as coal and oil are adding more carbon dioxide to the atmosphere.
- 5) **Water Vapor (H₂O)** - 0.0 to 4.0% - It's essential for life processes and also prevents heat loss from the earth.
- 6) **Noble gases traces** - they are gases which are inert, that do not easily react, found only in very small amounts. They include **neon (Ne)**, **helium (He)**, **krypton (Kr)**, and **xenon (Xe)**.

Questions about lesson one:

- 1) Briefly write a definition of the atmosphere in English.
- 2) What are the main components of the atmosphere: list them and describe them shortly.

VOCABULARY

ATMOSPHERE = atmosfera

EARTH = Terra

PLANET EARTH = pianeta Terra

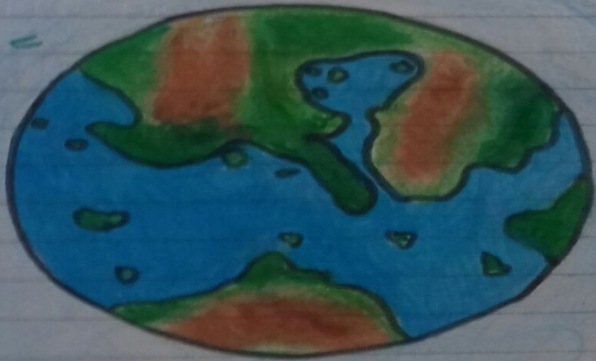
LAYERS = strati

AIR = aria

ULTRAVIOLET SOLAR RADIATION = raggi ultravioletti

GREENHOUSE EFFECT = effetto serra

DIURNAL TEMPERATURE VARIATION = escursione termica



VOCABULARY

NITROGEN = azoto

OXYGEN = ossigeno

CARBON DIOXIDE = anidride carbonica

WATER VAPOR = vapore acqueo

NOBLE GASES TRACES = tracce di gas nobili

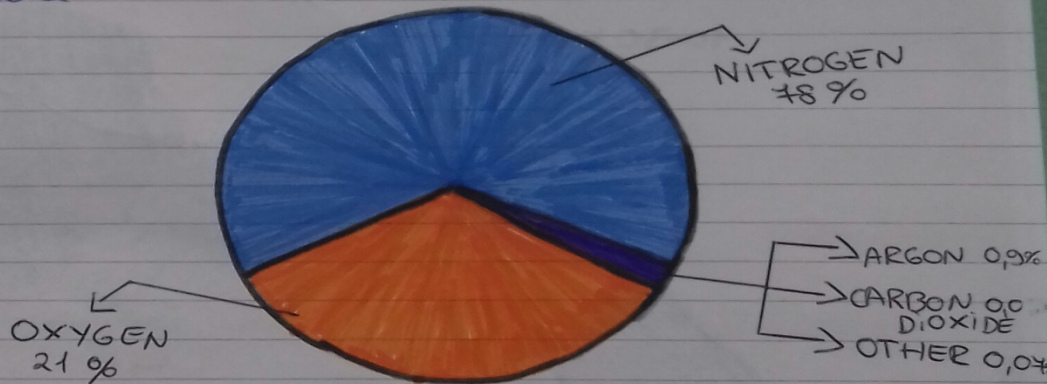
LIVING THINGS = organismi viventi

RESPIRATION = respirazione

COMBUSTION = combustione

PHOTOSYNTHESIS = fotosintesi clorofilliana

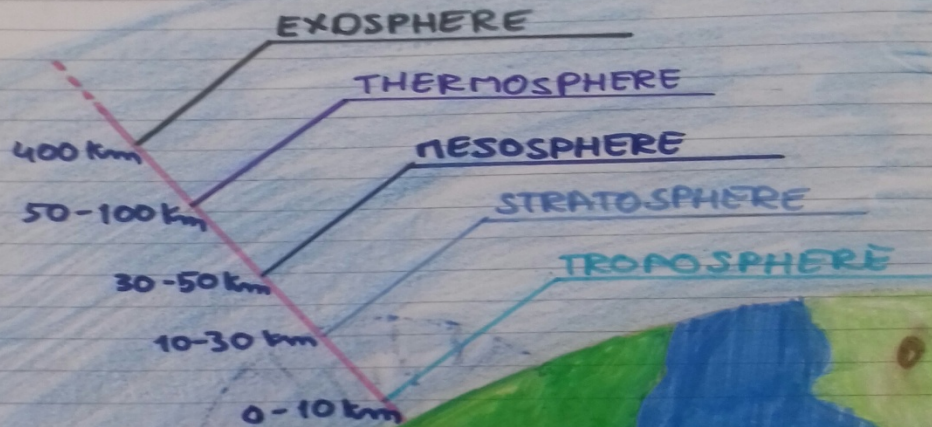
HEAT = calore



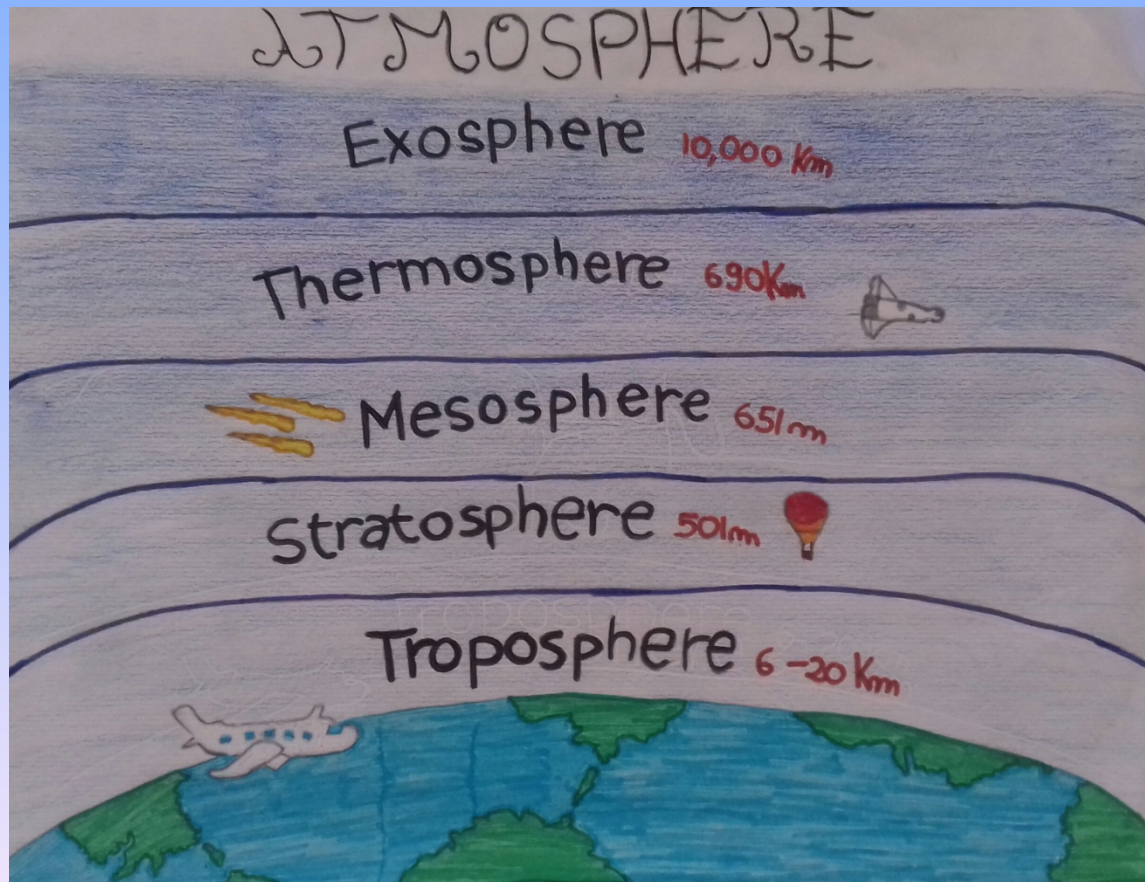
LAYERS OF THE EARTH'S ATMOSPHERE

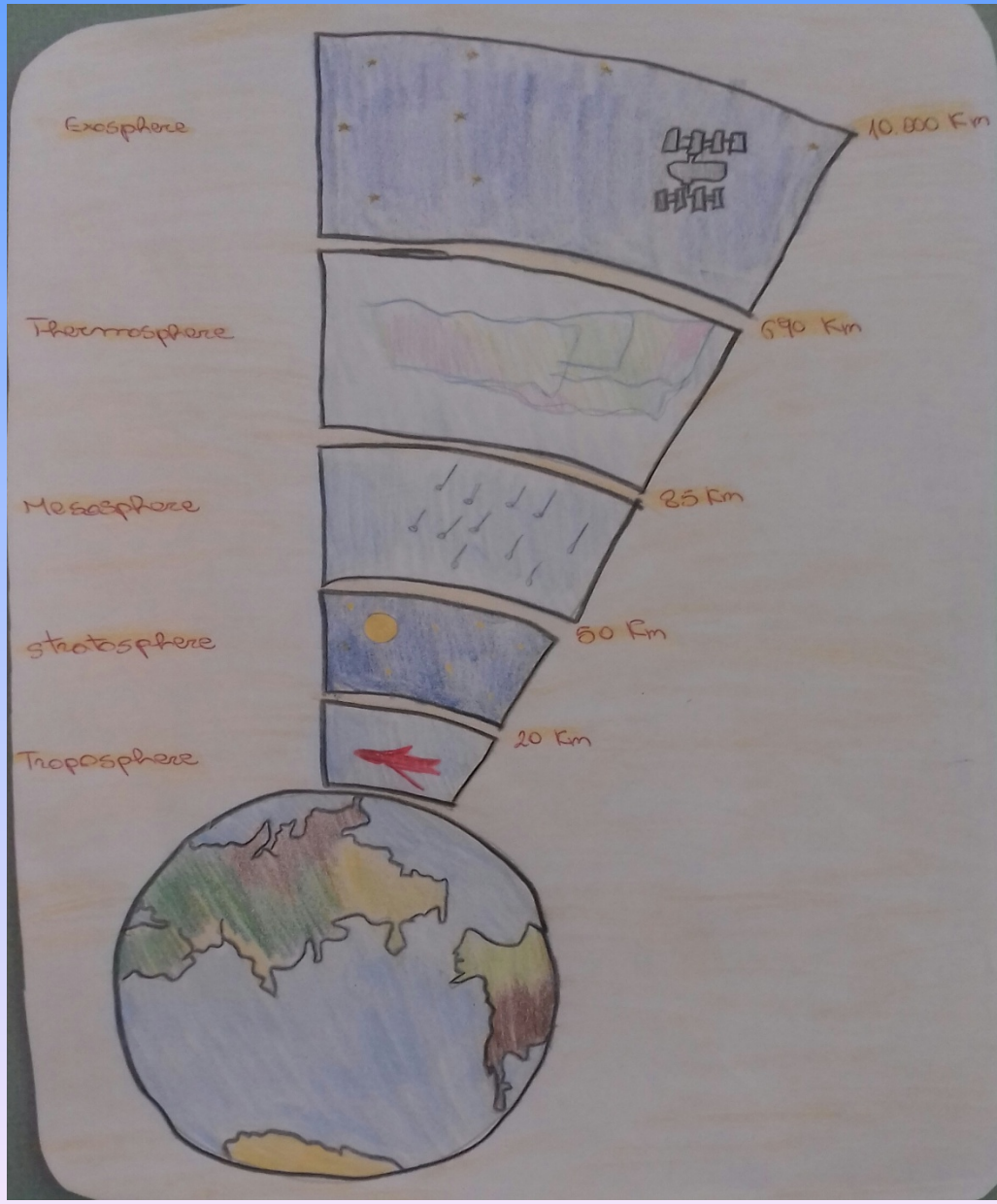
The atmosphere is divided in five layers. They are

- 1) THE TROPOSPHERE, is where weather occurs;
- 2) THE STRATOSPHERE, is where airplanes fly;
- 3) THE MESOSPHERE, is where meteors burn up;
- 4) THE THERMOSPHERE, is where the space shuttle orbits
- 5) THE EXOSPHERE is the extreme limit of our atmosphere



The layers of the atmosphere







Weather Songs - Where Is the Stratosphere?

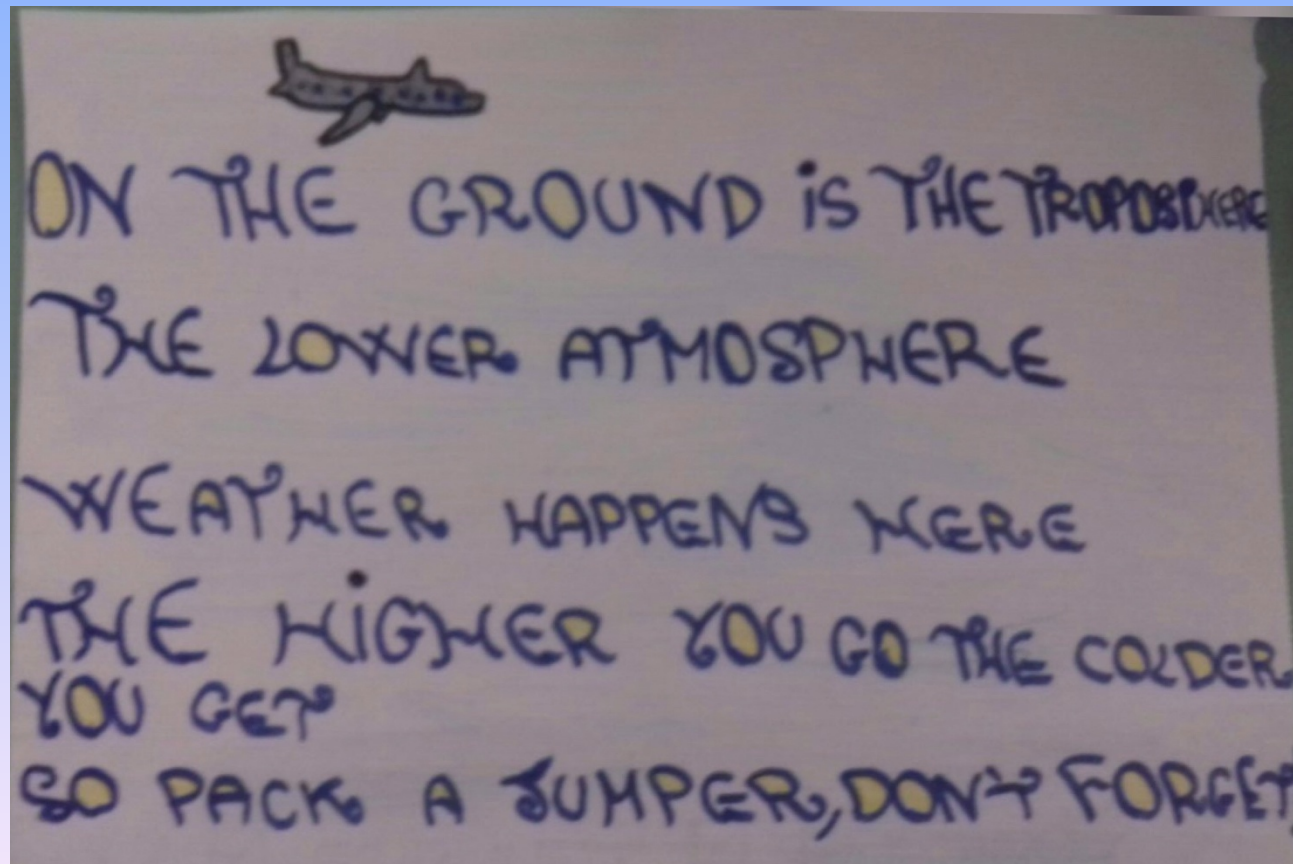
<https://youtu.be/VgVmnoJ30jI>

- Layers Of Atmosphere
The Dr. Binocs Show
Educational

- <https://youtu.be/5sg9sCOXFIk>



Poem “The atmosphere”





NEXT YOU HAVE THE STRATOSPHERE
ENDS AT 35 MILES UP IN THE
ATMOSPHERE



35-50 MILES ABOVE
WHAT COMES INTO MIND
THE MESOSPHERE IS
WHAT I THINK YOU'LL
FIND





RIGHT IN THE MIDDLE WHERE AIR IS SPARS
FURTHER AWAY IS THE THERMOSPHERE
IT'S HOTTER THEY SAY
AND THEN ON THE TOP OF THE EARTH'S FACE
COMES THE EXOSPHERE TOUCHING SPACE





RIPPING AWAY FROM THE EARTH'S
FRAGILE FACE
THE FIVE LAYERS COVERING THE
EARTH'S SPHERE
MAKING UP OUR OWN
ATMOSPHERE

Science for Kids

The Earth's Atmosphere



The earth is surrounded by a layer of gases called the atmosphere. The atmosphere is very important to life on Earth and does many things to help protect life and help life to survive.

A Big Blanket

The atmosphere protects Earth like a big blanket of insulation. It absorbs the heat from the Sun and keeps the heat inside the atmosphere helping the Earth to stay warm, called the Greenhouse Effect. It also keeps the overall temperature of the Earth fairly steady, especially between night and day. So we don't get too cold at night and too hot during the day. There is also a portion of the atmosphere called the [ozone layer](#). The ozone layer helps to protect the earth from the Sun's radiation.

This big blanket also helps to form our weather patterns and climate. The weather keeps too much hot air from forming in one place and causes storms and rainfall. All of these things are important to life and the Earth's ecology.

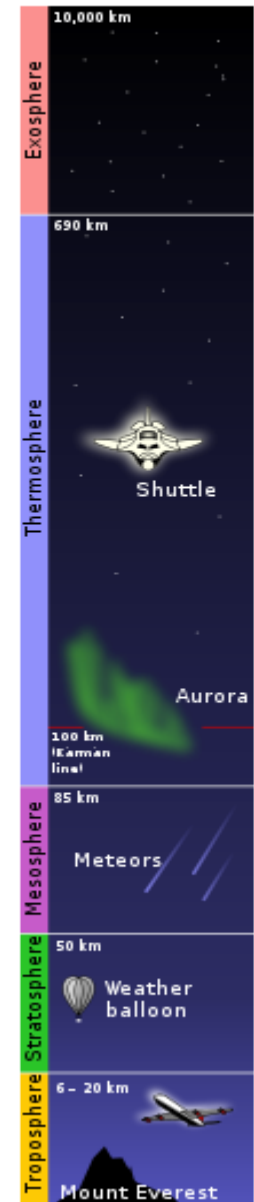
Air

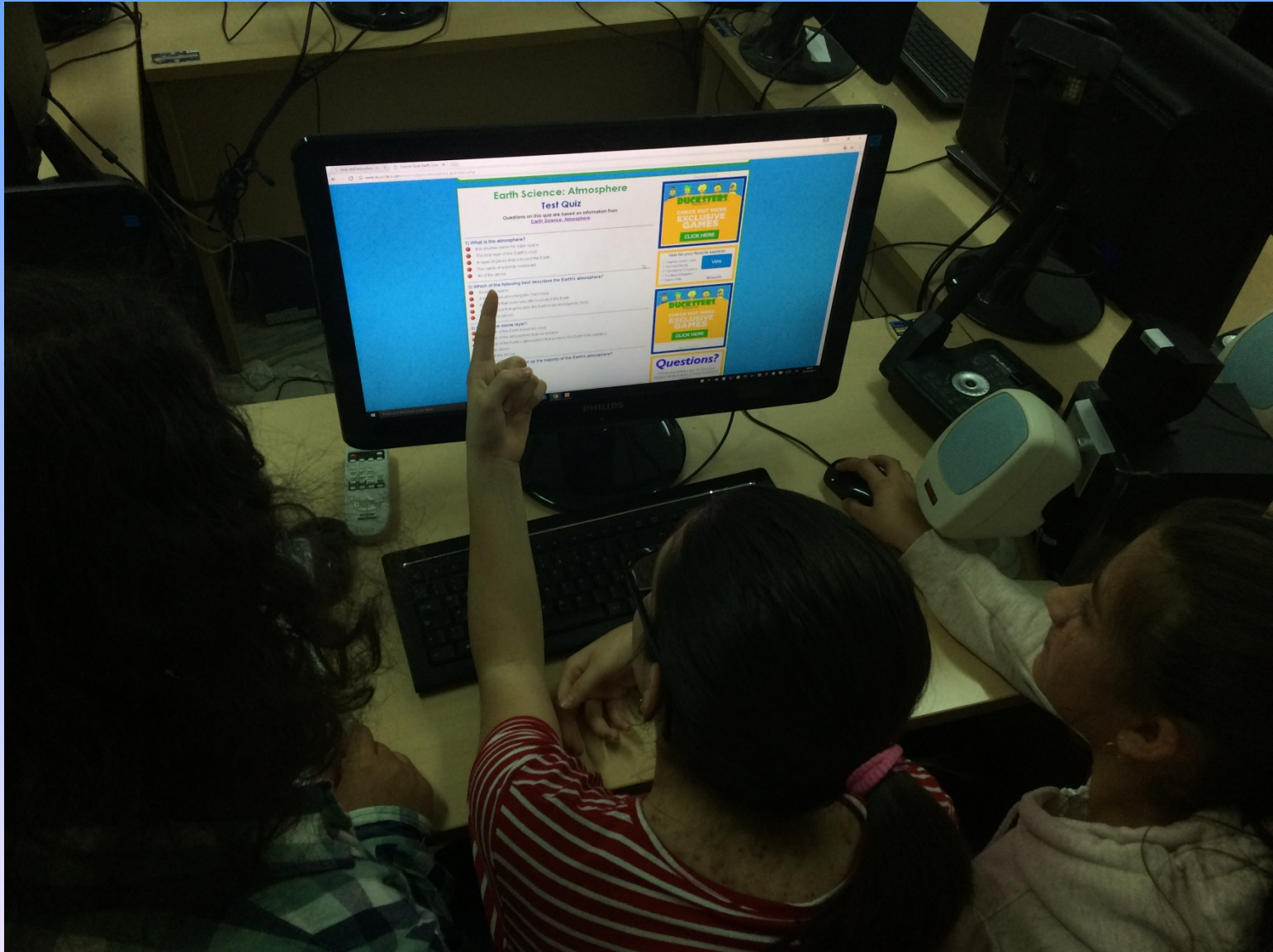
The atmosphere is the air that plants and animals breathe to survive. The atmosphere is made up of mostly [nitrogen](#) (78%) and [oxygen](#) (21%). There are lots of other gases that are part of the atmosphere, but in much smaller amounts. These include argon, carbon dioxide, neon, helium, hydrogen, and more. Oxygen is needed by animals to breathe and carbon dioxide is used by plant in photosynthesis.

Layers of Earth's Atmosphere

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Earth Science: Atmosphere

Test Quiz

Questions on this quiz are saved in Information Box

Earth Science: Atmosphere

1) What is the atmosphere?

- The layer of air that surrounds the Earth
- The layer of air that surrounds the Earth and extends to the edge of space
- The layer of air that surrounds the Earth and extends to the edge of the atmosphere
- The layer of air that surrounds the Earth and extends to the edge of the atmosphere

2) Which of the following best describes the Earth's atmosphere?

- It is the layer of air that surrounds the Earth.
- It is the layer of air that surrounds the Earth and extends to the edge of space.
- It is the layer of air that surrounds the Earth and extends to the edge of the atmosphere.
- It is the layer of air that surrounds the Earth and extends to the edge of the atmosphere.

3) How many layers does the atmosphere have?

- 1
- 2
- 3
- 4

4) What is the most abundant gas in the atmosphere?

- Oxygen
- Nitrogen
- Carbon dioxide
- Water vapor

5) What is the most abundant gas in the atmosphere?

- Oxygen
- Nitrogen
- Carbon dioxide
- Water vapor

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Questions?

Geography4Kids Quiz: Earth's Atmosphere

Good Work!

Thanks for taking the time to try one of our quizzes. Check out another quiz or go look at some more information on one of our sites. You can never learn too much about science and the universe around you.

[> Restart Quiz](#)

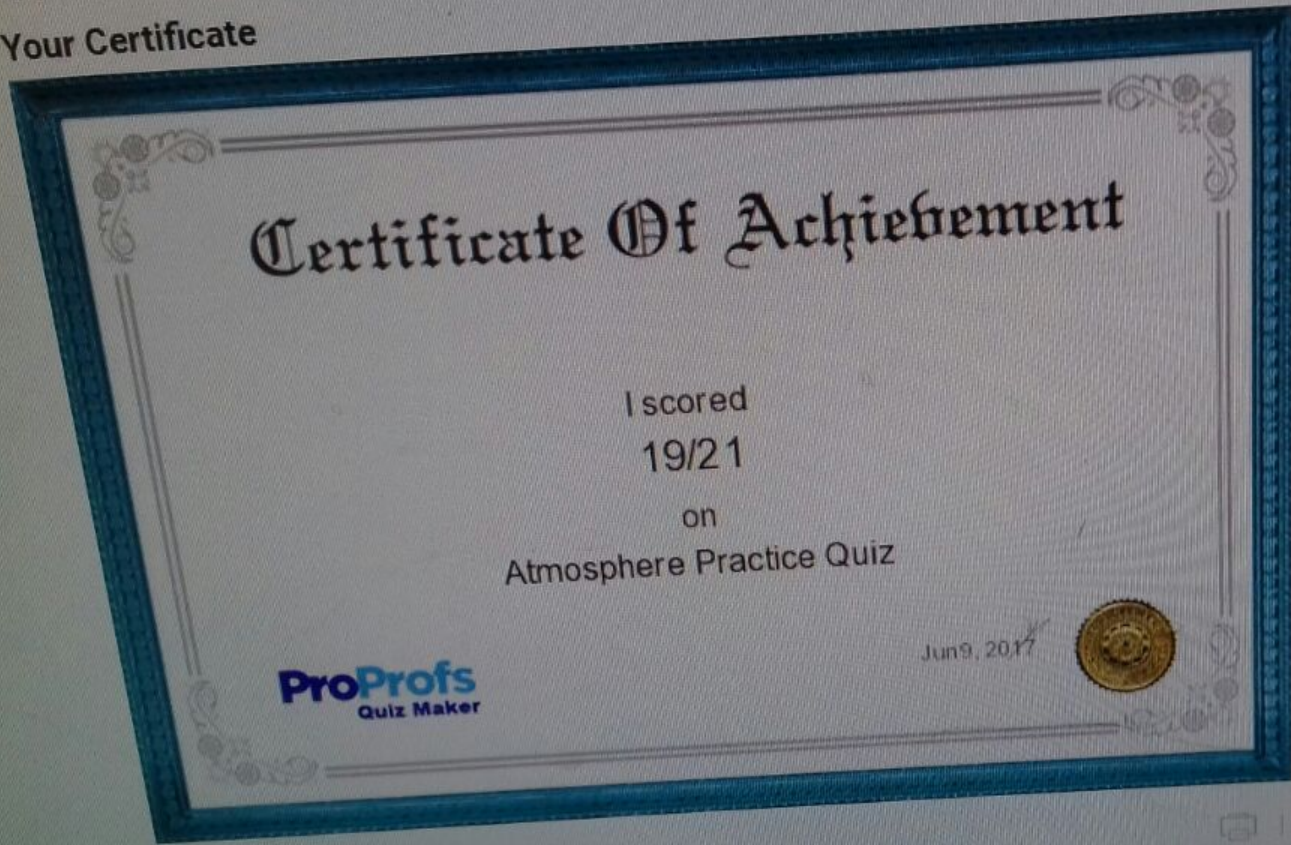


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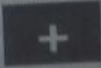
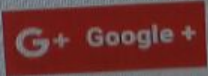
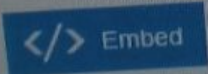


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8) What layer of the Earth's atmosphere is heated by the Sun hitting the ozone layer?

- Exosphere
- Thermosphere
- Mesosphere
- Stratosphere
- Troposphere

9) What layer of the Earth's atmosphere has a very thin atmosphere, but can also become very hot?

- Exosphere
- Thermosphere
- Mesosphere
- Stratosphere
- Troposphere

10) In what layer of the Earth's atmosphere do planes usually fly?

- Exosphere
- Thermosphere
- Mesosphere
- Stratosphere
- Troposphere



Your test score: 100%

For webquest of practice, print a copy of this quiz at the [Earth Science Atmosphere webquest print page](#).

About this quiz: All the questions on this quiz are based on information that can be found at [Earth Science Atmosphere](#).

Instructions: To take the quiz, click on the answer. The circle next to the answer will turn yellow. You can change your answer if you want. Once you have answered all the questions, click the "Done" button below the questions. Your score will be displayed. The balls next to the correct answers will turn green so you can see the right answers.

[Back to Science for Kids](#)

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