



High School Science Virtual Learning

Environmental Science

Stratospheric Ozone

April 14, 2020



High School Environmental Science

Lesson: April 14, 2020

Objective/Learning Target:

Students will be able to describe the Formation of Stratospheric Ozone



1. What are the 5 layers of the atmosphere?
2. What are the breaks between each layer called?



1. Stratosphere, Troposphere, Mesosphere, Thermosphere, and Exosphere
2. Layer of the atmosphere + pause.
Examples: tropopause, stratopause, etc.



Lesson Activity:

Directions:

1. Watch the video and take notes over the formation of stratospheric ozone layer.
2. Read the article and fill in any gaps you may have from the video

Link(s):

[Video](#)

[Article](#)



Practice

You will use the information from the activity on slide 3 to answer the following questions.



Practice Questions

1. What is the formula for stratospheric oxygen?
2. If you were to try and compare the ozone layer to a regularly used item, what item would it be and why?
3. What would have happened if we would have continued the wide scale use of CFC's over time?
4. Is ozone always beneficial?
5. What was the importance of the Montreal Protocol (1989)?

Answer Key

Once you have completed the practice questions check with the work.

1. $3\text{O}_2 + \text{Sunlight} \longrightarrow 2\text{O}_3$
2. Sunscreen. It protects the earth from ultraviolet rays as sunscreen does with human skin.
3. The ozone would eventually no longer exist causing most if not all of life on the earth to perish.
4. No, ozone in the troposphere causes smog and greenhouse gases.
5. The Montreal Protocol is a treaty that countries signed to slow down and eventually stop using CFC's.



More Practice

You will use the information from the activity on slide 3 to complete the following activity.



More Practice

1. Read through this case study.
2. Once you have read it, answer the questions found at the end on a separate piece of paper.

[Ozone Case Study](#)

Answer Key

Once you have completed the practice questions check with the work.

1. CFC/Freon were mentioned in the use of inhalers. They were also used in hairspray cans for a long time. Methyl Bromide was mentioned as a pesticide and fumigant. It is also used in degreasing objects.
2. Montreal Protocol is the treaty. Ozone is important because it blocks out harmful UV rays.
3. The 5 points of view presented included to get rid of CFCs, get rid of methyl bromide, put money into enforcement of the Montreal Protocol, put money into helping with aid programs, and putting money into educating people.
4. Answers will vary, here is a sample one: I would put the money into enforcement and education. By educating people, we are better able to enforce these protocols. I would need more information about what the protocols are, what fines or punishments exist for breaking them, and what education services are already being offered.
5. Answers will vary, here is a sample one: What are the specifics of the Montreal Protocol? What are developing nations doing to help?



Extra Resources

Here is a lab that you can complete for extra practice. The instructions are located within the link and complete it on a separate piece of paper.

[Ozone Lab](#)