



High School Science Virtual Learning

Environmental Science
Effects of Ozone Depletion

April 17, 2020



High School Environmental Science

Lesson: April 17, 2020

Objective/Learning Target:

Students will be able to identify and describe the Effects of Ozone Depletion.



1. What are CFCs?
2. What is the effect of CFCs on stratospheric ozone?

1. Chlorofluorocarbon or CF_2Cl_2 that are commonly used in refrigerants, plastics, and aerosols.
2. Reacts with the O_3 molecule, splits it into O and O_2 and attaches with the extra Oxygen atom.



Lesson Activity:

Directions:

1. Read the article and watch the videos linked below. Take careful notes over the effects of ozone depletion as you do so.
2. Create a PSA concerning the effects of ozone depletion. Your PSA should detail at least 3 effects of ozone depletion and be at least 5 paragraphs long. It should take no more than 5 minutes to read. If you need help with creating a PSA, [use this link.](#)

Link(s):

[Article Link](#)

[Video #1](#)

[Video #2](#)



Practice

You will use the information from the activity on slide 5 to answer the following questions.

Practice Questions

1. What is the effect of reduced ozone levels on the health of humans?
2. What is the effect of reduced ozone levels on plants?
3. What is the effect of reduced ozone levels on marine ecosystems?
4. What is the effect of reduced ozone levels on biogeochemical cycles?
5. What is the effect of reduced ozone levels on materials?

Answer Key

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

1. UVB causes non-melanoma skin cancer and plays a major role in malignant melanoma development.
2. UVB radiation affects the physiological and developmental processes of plants.
3. Exposure to solar UVB radiation has been shown to affect both orientation and motility in phytoplankton, resulting in reduced survival rates for these organisms. Scientists have demonstrated a direct reduction in phytoplankton production due to ozone depletion-related increases in UVB.
4. Increases in UVB radiation could affect terrestrial and aquatic biogeochemical cycles, thus altering both sources and sinks of greenhouse and chemically important trace gases.
5. Synthetic polymers, naturally occurring biopolymers, as well as some other materials of commercial interest are adversely affected by UVB radiation.



More Practice

You will use the information from the activity on slide 5 to answer the following questions.



More Practice Questions

1. What is the risks of prolonged exposure to UVB radiation?
2. How does UV radiation affect the immune system?
3. How does UV radiation affect agriculture?
4. How does UV radiations damage of chlorophyll affect the plants?
5. How does ozone depletion increase climate change?

Answer Key

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

1. Higher risks of skin cancer, sunburns, and cataracts.
2. It weakens the immune system and effects the bodies ability to fight off infectious diseases.
3. UV can reduce crop yield and nutrient levels in the crops.
4. UV lowers the rate of photosynthesis in plants
5. The UV rays help increase the temperature of the earth which is then trapped by the greenhouse gases in the atmosphere.



Additional Practice

Want more information about the effects of ozone depletion, [watch this video.](#)

Here is an article that offers more information about ozone depletion and its effects: [Ozone Depletion and its Effects](#)