



High School Science Virtual Learning

**Environmental Science**

**Radiation**

April 15, 2020



# High School Environmental Science

## Lesson: April 15, 2020

### **Objective/Learning Target:**

Students will be able to explain the effects of ultraviolet radiation



1. Why is ozone important?

2. What are some things that can break down ozone?



1. Ozone is important because it blocks out harmful UV radiation.
2. CFC's, methyl bromide, etc.



# Lesson Activity:

## Directions:

1. Start by watching the video, taking notes as you do so.
2. Read the following articles about the effects of UV radiation, again taking notes as you do so.

## Link(s):

[Ultraviolet Wavelength Video](#)

[UV Radiation Article 1](#)

[UV Radiation Article 2](#)



# Practice

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



## Practice Questions

1. What is the type of Ultraviolet radiation that reaches the Earth's surface?
2. What type of Ultraviolet radiation is the most dangerous? Does this reach the surface?
3. How is ultraviolet radiation different from visible light?



# Answer Key

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

1. Mostly UVA (Ultraviolet A) reaches the earth's surface with a little bit of UVB (Ultraviolet B).
2. UVC (Ultraviolet C) radiation is the most detrimental to humans, but is almost completely filtered out by the ozone layer.
3. While visible light and ultraviolet light are both waves of energy, the ultraviolet light has a much shorter wavelength so it can not be seen with the human eye. This shorter wavelength also contributes to its capability of damaging the human DNA.





# More Practice

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



# More Practice Questions

1. What effect does UV radiation have on the body?
2. What are some benefits of UV radiation?
3. What are some risks associated with exposure to UV radiation?
4. In what ways can you protect yourself from UV radiation?
5. Does location affect the amount of UV radiation one can be exposed to?
6. What is the UV Index (UVI) and what is it used for?

# Answer Key

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

1. UV can cause damage to the skin. Sunburn is a sign of short term exposure, while premature aging and skin cancer are a sign of long term exposure.
2. Production of Vitamin D, which is essential to human health and helps with the absorption of calcium and phosphorus.
3. Sunburn, premature aging, skin cancer, increased risk of potential blinding eye diseases, etc.
4. Stay in shade, wear clothes that protect your arms and legs, wear a wide brimmed hat, wear sunglasses, using sunscreen, avoiding indoor tanning, etc.



## Answer Key

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

5. Yes, UV rays are most concentrated in areas closer to the equator due to the positioning of the sun. UV exposure is also greater in areas with snow, sand, pavement, and water due to reflective properties. Other things that can affect UV exposure based upon location include, altitude, time of day or year, weather conditions, and reflection.

6. The UVI index is a rating scale which indicates the amount of skin-damaging UV rays have reached Earth's surface during the day. It is used to show and predict what type of UV radiation is going to hit.



# Additional Practice

[What is Ultraviolet Light?](#)

If you are still struggling to understand what ultraviolet or UV light is read the above article

[How does this connect to the ozone layer?](#)

If you are struggling to connect UV light and the ozone information we just learned read the above article.

[What does UV radiation do to other living organisms?](#)

If you want to know what the effects on other species are read the above article.