Name: _____Key_____ Hour: _____

The Facts about Ozone

Introduction

1. Ozone is made of **three** oxygen atoms.
2. Ozone is less stable than diatomic oxygen, so it tries to give up **an oxygen atom.**
3. We see ozone as a **pale blue** gas.
4. Ozone is described as Dr. Jekyll (stratospheric ozone) or Mr. Hyde (tropospheric ozone). Please note two characteristics of each type of ozone:

Ozone in the stratosphere:
Protects life on earth from uv rays, is considered beneficial because it absorbs uv radiation, etc

Ozone in the troposphere:
Pollutant that damages human health, vegetation, creates smog, etc

Electromagnetic Spectrum (sound familiar?)

5. As a review, please write the names of the electromagnetic spectrum from longest to shortest wavelengths:
Radio, microwave, infrared, visible, ultraviolet, x-ray, gamma ray

6. Ultraviolet radiation splits apart oxygen molecules (remember, 2 oxygens), setting the stage for ozone to be created. **A Free oxygen atom** collides with **an oxygen molecule** to form an ozone molecule.

Ozone in the Stratosphere

7. Only ozone blocks the most energetic ultraviolet light, which are **UV-C and UV-B.**

8. What would likely not exist today if ozone was not in the upper atmosphere? **Life on Earth**

9. Most ozone lies in the stratosphere, which is between **10 and 30 miles** above the Earth's surface.

10. Ozone would keep up a dynamic equilibrium which "shields" life on Earth, if not for **humans** contributing to the chemical processes.

Ozone in the Troposphere

11. Ozone is found in small amounts in the troposphere, the layer found from the Earth's surface to **7** miles up. In this region of the atmosphere it is considered a **greenhouse** gas. As this type of gas, it has a **greenhouse/warming** effect.

12. Ozone is also a key ingredient in **smog**. Yuck!

Concluding Thoughts

13. What simple saying sums up a lot about ozone in different regions of the atmosphere?
Good up high and bad near by!