

Name _____
Chem 3620
Environmental Chemistry

Worksheet

The answers to the following will be given in class, found on the web, or given in the movie “An Inconvenient Truth”.

Discuss

1. What is the ionosphere? How does it form? What does it help protect us from?
2. What are the 5 major anthropogenic tropospheric air pollutants?
3. Explain with reactions how ozone is naturally formed and destroyed in the stratosphere.
4. Explain using reactions how CFC's cause a problem in the stratosphere for most of the earth.

5. Explain the “Greenhouse Effect” problem. Include in your answer what substances are thought to cause this problem.

6. What global trends are we seeing that are consistent with the consequences we can expect from increasing the concentrations of "greenhouse gases"?

Short answer

- _____ 1. Which of the following major air pollutants in the lower atmosphere has the largest contribution from man (NO_x, CO, SO_x)?
- _____ 2. "Scrubbers" such as those used at the Cumberland City Steam Plant use _____ to remove _____ from the exhaust gas.
- _____ 3. In chemical terms CO poisoning is due to the fact that the value of the _____ is much greater for CO and hemoglobin than for O₂ and hemoglobin.
- _____ 4. How does temperature change with increasing altitude in the troposphere?
_____ In the stratosphere?
- _____ 5. The wavelength range for UVA is (10-280 nm, 315-400 nm, 280-315 nm).
- _____ 6. Although ozone absorbs more than one type of UV light it is most important for its absorption of (UVA, UVB, UVC) radiation.
- _____ 7. CFC stands for _____.
- _____ 8. CFC 12 is a current major problem with older auto air-conditioners. What is the general (or condensed structural) formula for CFC 12?
- _____ 9. Halons have been commonly used as _____ and contain the elements _____.
- _____ 10. What health problems can result from an increase in UV-B reaching the earth?
- _____ 11. The compound CH₂FCF₃ is replacing the refrigerant used in cars and refrigerators. What is the Freon code number of this molecule?
- _____ 12. Another name for the light reflected back into space from the sun is the _____.
- _____ 13-15. The temperature of the earth and any other planet depends on what three factors?

- _____ 16. Many of the reactions in the atmosphere involve the formation of highly reactive species with unpaired electrons, called _____.