Chapter 13 Section 2 Notes

ozone layer – part of the stratosphere that absorbs most of the ultraviolet light from the sun

- ozone layer protects living organisms on Earth by blocking solar ultraviolet (UV) radiation.
- Ozone in the stratosphere absorbs UV light
- As the amount of ozone in the stratosphere decreases, more ultraviolet light is able to reach Earth's surface.

Chemicals that Cause Ozone Depletion

- chlorofluorocarbons – a class of human-made chemicals that damage the ozone layer
    - scientists estimate that a single chlorine molecule in the CFC structure can destroy as many as 100,000 ozone molecules
        - ozone molecules are decomposed by chlorine atoms
    - stratospheric ozone is destroyed by CFC's
    - once in the atmosphere CFC's persist and continue to destroy ozone for decades

The Ozone Hole

How Does the Ozone Hole form

- Ozone holes appear in polar regions during springtime when ozone-destroying chlorine atoms are released from polar stratospheric clouds
- polar stratospheric clouds – high altitude clouds made of water and nitric acid
- polar vortex – strong circulating winds over Antarctica

Effects of Ozone Thinning on Humans

- Ozone thinning causes high UV radiation at Earth's surface which can:
    - cause skin cancer
    - damage DNA

Effects of Ozone Thinning on Animals and Plants

- death of amphibian eggs, genetic mutations among survivors, and reduction of populations
- death of phytoplankton (single-celled organisms that live near the ocean's surface)

Protecting the Ozone Layer

- Montreal Protocol – international agreement to limit CFC production to protect the ozone layer
    - even though CFC production has been curtailed, the threat to upper atmospheric ozone continues because CFC's persist and continue to break down ozone for decades.