

Name: _____

Date: _____

Class: _____

IB Environmental Systems and Societies

6.2 Stratospheric Ozone

Significant ideas:

Stratospheric ozone is a key component of the atmospheric system because it protects living systems from the negative effects of ultraviolet radiation from the Sun.

Human activities have disturbed the dynamic equilibrium of stratospheric ozone formation.

Pollution management strategies are being employed to conserve stratospheric ozone.



Ultraviolet radiation and ozone

1. List the potential harmful effects of ultraviolet radiation on living tissue.

2. Explain how increased levels of UV radiation can influence biological productivity.

3. With reference to the three types of UV radiation, outline how the frequency of the radiation affects its potential to cause harm to living tissues.

4. State why the stratospheric ozone is said to exist in a "dynamic equilibrium"

5. Complete the diagram to summarise the natural formation and destruction of ozone in the presence of UV radiation in the stratosphere.



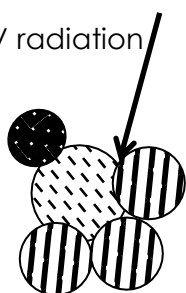
Ozone depletion

1. Chloroflourocarbons (CFCs) can deplete ozone levels. List the uses of CFCs:

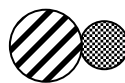
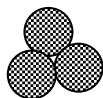
2. The diagram below represents the depletion of ozone as a consequence of CFC emission. Label each molecule below. Use the following words:

Chlorine radical, ClO, CFC, Oxygen molecule, Ozone molecule, Oxygen radical

UV radiation



+



+



+



+



Note: You don't need to know words like "radical", and you don't need to memorise any equations. The diagram above is to help with your understanding, but you aren't expected to learn it by heart.

3. From the diagram above, you should be understand the following points:

- Chloroflourocarbons release _____ atoms with exposed to UV radiation in the atmosphere
- The chlorine atom reacts to _____ and breaks it down to molecular oxygen (and produces ClO).
- ClO can then be split up to regenerate a chlorine atom. This can continue to deplete levels of _____ospheric _____.

4. State the effect of CFC release on the amount of UV radiation reaching living things:

