

Name: _____

Date: _____

Class: _____

IB ESS

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.



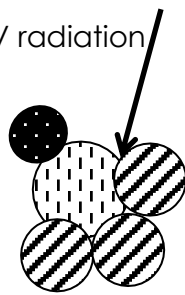
Ozone-Depleting Substances

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 understand the following points:

- Chloroflourocarbons release _____ atoms when exposed to UV radiation in the atmosphere.
- The chlorine atom reacts with _____ 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:

5. Explain the formation of the "hole in the ozone layer".

6. Complete the table to list ozone depleting substances and their uses/sources.

ODS	Use or Source
CFCs	
	An alternative to CFCs (Less harmful, but still harmful)
	Fire Extinguishers
Methyl Bromide	
NO _x	



Pollution Management Strategies for ODSs

1. Using the pollution management strategy model (the table below), summarize methods to reduce ozone depleting substances.

Strategy for reducing pollution	
Altering human activity	
Regulating and reducing pollutants at the source	
Clean up and restoration	

Lined writing area for student response.

