

You will get a text about the ozone layer and its impact on climate. Read it carefully and answer the questions below. Prepare a short speech about specific situation you will be given.

Topic: *The Ozone layer depletion: a serious problem nowadays I*

Questions to answer:

What is the ozone layer and why is it important?

How does ozone depletion occur?

Situation I: Imagine you are a scientist, who should present the ozone layer and its importance. Introduce the ozone layer depletion as a serious problem, which causes a lot of harm.

Ozone is a form of oxygen. The oxygen we breathe is made up of 2 oxygen atoms (O₂), but ozone is made of 3 oxygen atoms (O₃). It is a colourless gas that has a very strong smell.

When the atmosphere has no man-made pollution in it there is a balance between the amount of ozone forming and the amount being destroyed. There needs to be the right amount of ozone in the atmosphere to stop organisms from being damaged by sunlight. In the 1970s scientists found that CFCs (chlorofluorocarbons) could destroy the ozone layer. CFCs are chemicals that have been used in aerosol cans and fridges since the 1930s, although they are used much less today. If CFCs are carried high into the atmosphere, where the ozone layer is, they can destroy ozone by reacting with it in strong sunlight. CFCs have been responsible for approximately 80% of the total ozone depletion to date. CFCs are therefore responsible for the majority of ozone depletion, but a number of other substances are known to have the same effect. Supersonic aircraft such as Concorde, for example, release nitrogen oxides, which break down ozone. When CFCs destroy ozone, the natural balance of the atmosphere is upset and more ozone is destroyed than is being created. This allows more ultraviolet rays from the Sun to reach the Earth. The cells of living things, including plants, animals and people, can then become badly damaged.

Stratospheric ozone is a naturally-occurring gas that filters the sun's ultraviolet (UV) radiation. A diminished ozone layer allows more radiation to reach the Earth's surface. For people, overexposure to UV rays can lead to skin cancer, cataracts, and weakened immune systems. Increased UV can also lead to reduced crop yield and disruptions in the marine food chain. UV rays also have other harmful effects.

Health: The most well-known effect of ultraviolet rays is the reddening or burning of the skin in sunshine. Exposure to ultraviolet rays increases the risk of skin cancer. According to some estimates, a 10% loss in global ozone levels may lead to a 26% increase in skin cancer among fair skinned people. Ultraviolet rays can also be damaging to our eyes. An increase in the amount of ultraviolet energy reaching the Earth would lead to an increase in eye disorders. Cataracts, for example, affect the eye's lens and can lead to blindness. The eyes are much more sensitive than the skin and a 1% decrease in ozone may result in 100,000 to 150,000 additional cases of blindness due to eye cataracts world-wide.

Plants: Many crops and land plants could be sensitive to ozone depletion and harmed by an increase in ultraviolet rays.

Organisms: Ultraviolet light can travel through water. Too much ultraviolet light may kill

plankton (small plants and animals floating in the oceans). These plankton are an important source of food for many other creatures like fish and whales, which could starve if the amount of plankton decreases.