



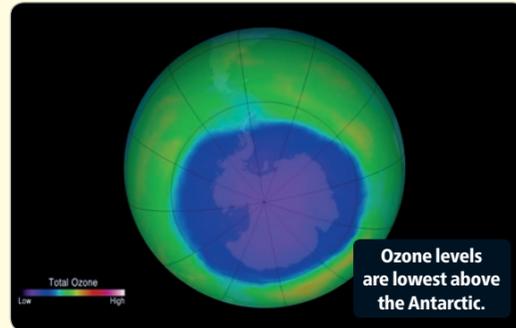
Healing the hole

Harmful chemicals caused a hole to be created in Earth's ozone layer.

All life on Earth is protected by a sort of shield, called the ozone layer. Ozone is a molecule (a chemical substance) made up of oxygen atoms. Oxygen (the gas we breathe to live) is made of two atoms of oxygen joined together; ozone molecules have three atoms of oxygen joined together. The ozone layer is made of lots and lots of ozone molecules. Sitting between nine and 22 miles above Earth's surface, the ozone layer absorbs most of the Sun's dangerous ultraviolet (UV) light. These rays can harm humans and most other creatures. World Ozone Day is marked on 16 September.

The ozone hole

A rather large hole in the ozone layer was discovered by scientists in the 1980s. This is an area with very little ozone in the stratosphere. The stratosphere is an important layer of Earth's atmosphere – the gases that envelop our planet. A hole in the ozone layer is dangerous for the planet because lower ozone levels mean that the surface has less protection from UV light. The ozone hole sits above the Antarctic and, since its discovery, the hole has been carefully monitored. It continued to grow. However, in 2016, researchers noticed the first promising signs that the hole is getting smaller.



The ozone layer protects life on Earth by absorbing dangerous light from the Sun.



DID YOU KNOW?
The ozone layer was discovered in 1913 by two French physicists named Charles Fabry and Henri Buisson.

WHAT'S THAT WHIFF?
Ozone was identified by a German scientist called Christian Friedrich Schönbein, who named it after ozein, the Greek word for to smell, because of ozone's strong aroma.

The ozone layer in numbers

90%

The ozone layer is home to 90% of Earth's ozone.

100

CFCs can exist in the atmosphere for up to 100 years.

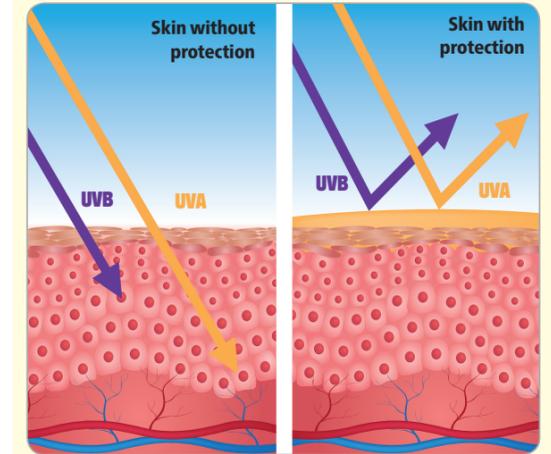
30

The repair of the ozone layer could be delayed by 30 years because of chlorine-containing chemicals.

197

The number of states that banned harmful CFCs in 1987.

What is ultraviolet radiation?



About 10% of sunlight is radiation called ultraviolet (UV) light: UVA, UVB and UVC. We cannot feel or see them, but all types can damage our skin and eyes. UVC is the most damaging, but it is blocked by Earth's atmosphere. UVA is thought to be responsible for causing a tan and wrinkles and goes deeper inside our skin. Exposure to UVB can increase our chances of sunburn and skin cancer. UVB is mostly absorbed by the ozone layer. The thinner the ozone layer, the more UVB reaches us. You can protect yourself with high factor sunscreen and glasses with UV protection.

Healing the hole



Sweden was the first country to ban all aerosol sprays containing CFCs in 1978 – before the ozone hole was discovered. Many more countries followed suit. In 1987, 197 countries (including the UK) signed an agreement called the Montreal Protocol, which has helped to get rid of products and substances that damage the ozone layer.

The ozone hole is now getting smaller, and new research has found that this recovery is probably because people are using far less CFCs, which just goes to show that we can make a difference. Some scientists have predicted that the ozone hole may be gone by 2060 or 2080. However, recently it has been discovered that CFCs are being used in the home-building industry in China – and unless this is stopped, the ozone layer's recovery could be set back by years.

What caused the ozone hole?

Man-made chemicals called chlorofluorocarbons (CFCs) are the main cause of damage to the ozone layer. CFCs were once very common in aerosols, fridges and air-conditioning machines. High in the sky, CFC molecules react with ozone and destroy it. CFCs are now banned. Chemicals called hydrofluorocarbons (HFCs) are more common now. These aren't as dangerous but many countries, including the UK, are planning to ban them.



Why are CFCs so damaging to ozone?

KEY

- CFC
- ozone
- oxygen gas
- chlorine
- fluorine
- carbon

