PURE AIR

The atmosphere surrounding the Earth is approximately 15 km thick, but only the first 5-6 km contain enough oxygen for living beings. The air we breathe is a precious resource that is increasingly being degraded by pollution caused by human activities.

Hanging by a thread

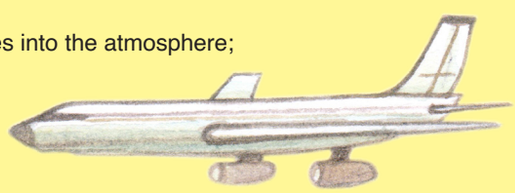
"Air" is the name we usually give to the mixture of gases that living organisms breathe. It is composed of 21% oxygen, 78% nitrogen, and the remaining 1% is made up of gaseous compounds, water vapour or solid particles.
We never think about it, but our lives depend on something that, compared to the size of the planet (12,742 km in diameter), is much thinner than a hair: in fact, this is the thickness that the atmosphere would have on a globe with a diameter of 45 cm.

A natural shield

The atmosphere is the natural shield that separates and protects the Earth from dangers that come from space: from ultraviolet radiation from the sun to meteors. Satellites also pose a danger: once they have served their purpose, they break up into billions of small pieces that sooner or later fall back to Earth and constitute a dangerous form of extraterrestrial pollution called space debris.

The main causes of air pollution

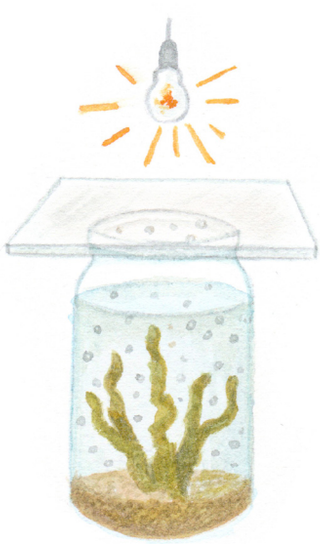
Human activities, or their consequences, are the main causes of air pollution:



- various types of industry that release gaseous or solid particles and hazardous substances into the atmosphere;
- traffic, road transport, and cars;
- air transport;
- heating using fossil fuels (oil, methane);
- coal combustion;
- forest fires, aggravated by fires caused by burning rubbish or waste;
- noise, sound waves transmitted through the air, can also be considered a form of pollution that causes disturbances and diseases not only in humans but also in other living beings.

Plants, our first allies

Plants are the only source of new oxygen! In fact, all plants, from grass to trees, produce oxygen through chlorophyll photosynthesis. For example, a 15 m x 15 m plot of land covered with grass provides enough oxygen every day for four people.



Experiment: Oxygen in water too

Fill a glass container with a wide opening with water, into which you have previously placed some sand and an aquatic plant bought from an aquarium shop. Cover the jar with a glass plate and place it under an artificial light source or expose it to the sun. After a while, you will see several air bubbles emitted by the plant in the water.
Ask the children to hypothesise what happens in the sea: do algae or aquatic plants such as *Posidonia oceanica* also produce oxygen? Where does it go? Who uses it?

Further information: The droplets that form on the glass plate allow you to observe another natural phenomenon. Ask the children to describe what they see and identify which stage of the water cycle they are observing corresponds to.

Another activity: with the help of parents, organise the planting of aromatic plants or flowers and shrubs that attract butterflies in the school garden. It may be necessary to make a map of the area and decide together with the children which plants to plant and how to distribute the different species.