A CLIMATE LESSON TO SAVE BIODIVERSITY

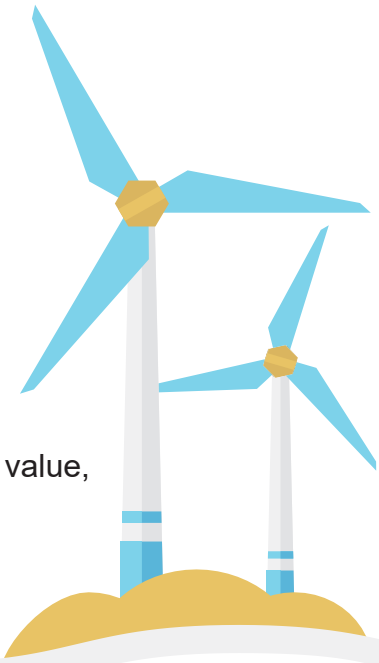
Do you know which is the most precious treasure we have on Earth**? It is the richness of its environments and of all life forms that inhabit them**. Scientists call this capital biodiversity.
We are very blessed to live on a planet that is so rich in it because biodiversity helps us to preserve the health of the Earth and ours. Having so much biodiversity is like having savings aside for times of need! But what does this mean? If the conditions on our planet were to change, the more life forms there would be and the more they would be different from each other, the more the possibility of surviving those changes would increase. That is why **we must preserve and protect biodiversity.**

Every element, every plant or animal, including humans, is part of a complex network that connects everyone. Think about the relationships between prey and predators, plants and herbivores, between parasites and their hosts. If even just one of these elements were damaged, sooner than later, all the others would suffer. Humans are also part of this complex network and we could harm it and be harmed too.
In brief, **biodiversity has enormous value**! Just think that some scientists have calculated the value of biodiversity loss in one year and transformed it into the equivalent in money: it costs us an average of 50 billion a year! That's a lot, isn't it?
This value depends on the numerous resources that the planet makes available to us and that we exploit.

Think, for example, of:
• agriculture
• hunting and fishing
• timber harvesting.

But also services such as:
• the recycling of air and water
• energy for heating homes
• the energy to heat the water
• gas for cooking

Or the immense value that nature has for our free time: a cultural value, but also a recreational one.



WHAT THREATENS BIODIVERSITY?

Humankind has begun to change the natural balance since it began to use fossil fuels and cut down the trees of large forests. We built factories, trains, cars, cities, with large consumption of coal, oil and gas, and we have started cutting down trees and replacing them with more and more fields to grow our food! By burning fossil fuels, carbon dioxide (or CO2, better known by its somewhat old term: carbon dioxide) is emitted, which increases the natural greenhouse effect you have already heard about in previous lessons.
Forests and the oceans, with their photosynthetic algae, have always been our natural distributor of oxygen: with chlorophyll photosynthesis they take CO2 from the atmosphere and return oxygen. But if we destroy the forests and pollute the oceans, they will no longer be able to do their "job" as before.
There are many activities that endanger biodiversity, in addition to deforestation and pollution, for example: overexploitation of the soil, intensive and uncontrolled fishing, and the introduction of invasive species.
But the most dangerous threats are the consequences of global warming!

WHY DOES CLIMATE CHANGE CAUSE BIODIVERSITY LOSS?

Global warming is one of the most serious threats to biodiversity because it causes **extreme phenomena**. Furthermore, due to global warming caused by human activities, rainfall, humidity and sea currents have also changed over the years.
The increase in CO2 in the atmosphere has caused the acidification of the sea and oceans: more acidic waters dissolve the shell or external skeleton of many marine organisms at the base of the food chain. Do you remember that network we were talking about earlier? Well, these animals are an example of its fundamental knots. If these knots untie, or are cut, the net starts to break.
Climate change is also changing flowering, migration and hibernation times of some animals, and is causing changes in the egg laying of birds and reptiles.

The most serious consequences on biodiversity you should remember:

- Global warming has increased natural fires, with a direct impact on forest biodiversity.
- Each species responds differently to changes. When some adapt differently from others, it can happen that their relationships also change. And that's not always good news! This is the case, for example, of the killer whales and belugas of the Arctic waters: belugas are marine mammals that live in the icy waters of the North Pole. However, rising temperatures have led to orcas frequenting their cold waters. Thus the belugas will be exposed to the attacks of a new predator.
- Milder winters bring the spread of mosquitoes, carriers of many diseases such as dengue, yellow fever and malaria. Furthermore, a spread of ticks, which they carry, is to be expected diseases such as Lyme disease.
- Some tree pests are on the rise.

HERE ARE THE ENVIRONMENTS MOST THREATENED BY CLIMATE CHANGE

The **Mediterranean environment** (both on the mainland and in the sea) is getting progressively warmer.

Marine environments are losing oxygen, and they are becoming more and more acids, putting you at risk the survival of their inhabitants.

The **mountain environments** and the **Alps** that are losing theirs glaciers, which melt due to rising temperatures.

THE MOST AFFECTED SPECIES BY CLIMATE CHANGE IN ITALY

Ibex

White partridge

Alpine chaffinch

Edelweiss

Silver fir

...AND IN THE WORLD

- Polar bear
- Adélie penguins
- King penguin
- Walruses
- Krill
- Giant pandas
- Snow leopard
- Iberian imperial eagle
- Marine plankton
- Sea turtles
- Orangutans
- Cheetah

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