

## Ecosystems junior

Since the Earth is a sphere, the equator receives more heat from the Sun respect to the Polar Regions. The rays of the Sun become weaker as you go further from the equator and therefore the Earth's surface gets heated unevenly, generating winds that move the air continuously. Warm air heated by the equatorial Sun rises, full of moisture. When the air cools, the moisture condenses and falls as rain. The warm air moves away from the equator and then sinks back down to earth; this phenomenon contributes to the formation of deserts, such as the Sahara. The cold air moves back towards the equator and replaces the rising warm air. This hot and cold air circulation is at the basis of the different climates around the world. Climate is also influenced by the presence of seas and mountain chains. In fact, coastal regions have a milder climate respect to the interior parts of the continents. The world's climatic zones have given rise to a great variety of natural environments. Every habitat is formed by an animal community and plants, and these are called ecosystems. Ecosystems can be recognised by the type of vegetation that characterises them most, and can be subdivided into: desert, savanna, steppe, temperate forest, tropical forest, taiga, tundra, Mediterranean scrub

Aquatic ecosystems, instead, can be divided into:

- freshwater ecosystems: lakes and ponds, rivers and streams, marshes and swamps
- marine ecosystems: coral reef, oceans, continental platforms, nutrient-rich areas, estuaries.

However, on Earth there are not only natural ecosystems, but also artificial ones created by man, when development forced him to organise his social life and his way of living and producing according to determined characteristics.

The artificial ecosystems are subdivided into:

- urban/industrial ecosystems (metropolises)
- rural ecosystems (small towns)
- agroecosystems (cultivated fields).

An ecosystem is a complex system which consists of organisms that live in a particular environment. Ecosystems are made up of **biotic components**, such as animals and plants, and **abiotic components** such as subsoil, air and water, light, temperature, climate and rain. Within an ecosystem, living organisms can be subdivided into:

- **producers** (plants, algae and some bacteria): these are "autotrophic" organisms that can synthesise their own organic substances in order to live and grow, utilising simple inorganic molecules such as water, carbon dioxide and nitrates
- **consumers**: these are "heterotrophic" organisms, because they are not able to produce their own food, and therefore feed on producers (for example, herbivorous consumers, such as cows and sheep, that eat grass in the fields) or on other consumers (carnivorous consumers such as the lion or man himself)
- **decomposers**: these are fungi and bacteria that absorb nutrients from tissues of dead organisms that they are decomposing.

A wood, a lake, a river, a meadow, a beach, the sea, even the green areas in a city are all ecosystems. In short, every centimetre of our planet constitutes or is part of an ecosystem. Ecosystems can vary greatly in size. The Earth itself can be considered one big ecosystem.