

## Landscapes junior

The Earth's surface is constantly changing. The changes in the Earth's crust have been brought about by the contribution of volcanoes, with the eruption of incandescent material, and by earthquakes and their strong vibrations caused by underground movements of the rocks. Another cause of the changes are the atmospheric agents, such as the flowing of rivers, the rain, the action of the wind and of the glaciers. In this manner, the Earth's surface undergoes a continuous remodelling, that slowly changes the landscape, and that starts with a series of processes that constantly wear away the surface of the rocks (erosion).

Variations in the temperature, the change from hot to cold, cause a dilation and contraction of the rocks, that provoke fractures and fragmentation. Rain water that filters, provokes cracks in the rocks, while the action of the wind presses against the solid surfaces, transports and lifts dusts and sands modelling the deserts. The river waters carry stones and pebbles from the mountains to the valleys and these materials, deposited by the water courses, form vast flat areas known as alluvial plains. The plains of the Po river (*Pianura Padana*), for example, were formed from the accumulation of sediments carried by the Po river. Also man, with his activities, can modify the natural landscape with new constructions, creating barrages across water courses, drilling through the mountains, eliminating the vegetation from the mountain slopes. Often human intervention can be the cause of severe damage for nature. It is thanks to the agents modelling the Earth's surface that the most spectacular landscapes that our eyes can see have formed. Just think of the canyons, the rocky arid valleys cut deeply by the water and atmospheric agents and characterized by vertical rocks and narrow canals, and steep and sinuous sides. For example, the **Grand Canyon**, dug by the Colorado river in North Arizona, is 446 kilometres long, it reaches a depth of 1600 metres, and has a variable width, from 500 metres to 29 kilometres. Also the work of the wind has created spectacular rocky formations, as for example the so-called **Three Sisters** in Australia, in an area where precipitation is very scarce. In Argentina, another canyon, the **Talampaya** canyon has been proclaimed a World Heritage Site. Along the course of the river, there are millenary forests of algarroba trees, South American sequoia, and rocky mountain sides that reach up to 100 metres: the area is rich in deposits of sediments of a long time ago, dating back to the Triassic and Permian periods, which are rich in fossils of the large reptiles and amphibians! In Egypt, near Giza, is the astonishing **White Desert**: a vast limestone area modelled by the wind, by the water infiltrations and by the strong variations in the temperature. Next to majestic pinnacles and smooth surfaces, near the ground there are small mushroom shaped rocks and crystal concretions. An area of 9 million square kilometres, 4000 kilometres long and about 1500 to 2000 kilometres wide, the **Sahara desert** has no equals worldwide. Its landscape is very varied: ranging from the *hamada* the bare rock desert land, to the *serir* dominated by pebbles and gravel, to the *erg*, the classic desert made of fine sand and dunes.

And we must not forget the beautiful landscapes of the regions near home, which are also the fruit of transformations by the agents modelling the Earth's surface; as for example the plains, the hillside landscapes, the rocky coastlines or the typical beaches of Sardinia or the Liguria region, and the Alpine glaciers in the Mont Blanc massif or Bernina mountain and also the rocky formations in the Dolomites!