AIR IN MOTION - JUNIOR VERSION

Air is in constant motion. The driving force behind atmospheric circulation is the Sun, which heats the Earth and the air in the atmosphere differently depending on latitude. The atmosphere attempts to balance temperature differences by moving masses of warm air from regions where there is excess heat to colder regions. The movements of air masses trying to balance temperature and pressure differences in the atmosphere give rise to winds, cyclones and anticyclones and all the atmospheric phenomena that make our planet's atmosphere 'turbulent'.

Wind is a displacement of air that occurs in the atmosphere. The air surrounding the Earth, although invisible, cannot leave any empty spaces and is in constant motion. This movement depends on various factors. Cold air is heavier and tends to sink downwards, towards the ground. Warm air, on the other hand, is lighter and therefore tends to rise upwards. When approaching the ground, therefore, the air heats up, rises and pushes down the cold air. The latter descends and fills the space that has been freed near the ground: this is how wind originates!

Clouds are formed by tiny water droplets or microscopic ice crystals. At positive temperatures, the clouds consist of droplets, while at temperatures many degrees below zero they are essentially crystals. The individual droplets of a cloud are very small and therefore almost invisible to the human eye. On the contrary, lots of tightly packed droplets close to one another are visible as a whole, creating the soft and constantly changing shapes of clouds. As we have all experienced when looking up at the sky, clouds come in a wide variety of shapes and sizes, and each one creates a unique and unrepeatable mass in the sky. Despite this, clouds can be grouped into 10 types: cirrus, cirrocumulus, cirrostratus, altostratus, altocumulus, stratus, stratocumulus, nimbostratus, cumulus and cumulonimbus.

In the atmosphere surrounding our Planet, in addition to various gaseous compounds such as nitrogen, oxygen and carbon dioxide, there is also water in the form of individual molecules of water vapour. However, when the vapour molecules become too numerous, the air can no longer contain them, i.e. the atmosphere becomes saturated. The number of vapour molecules that can be contained in air is closely related to its temperature and pressure: the warmer the air is, the greater the amount of vapour it can contain.