

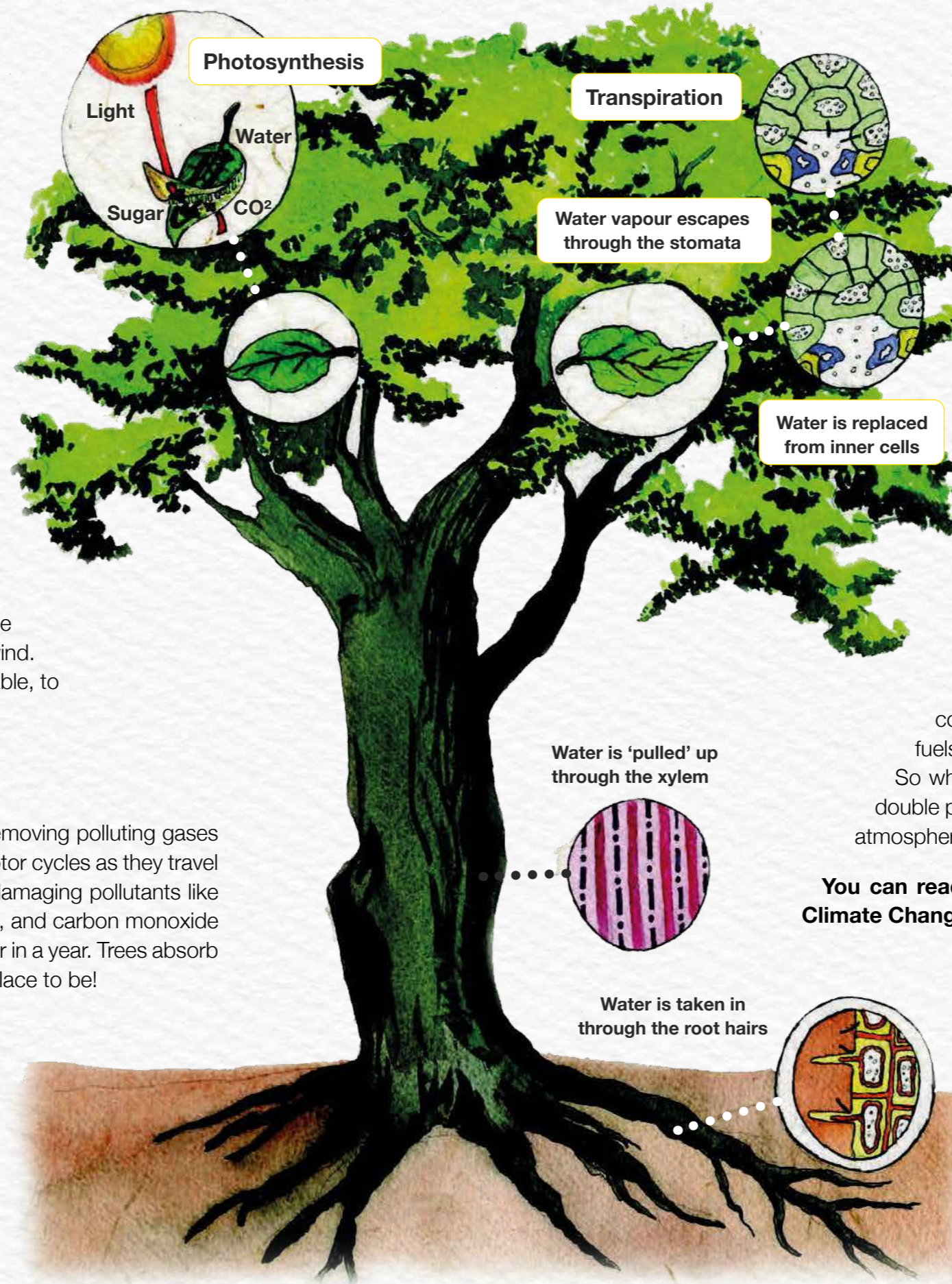
## FORESTS FEED THE RAIN

The process of transpiration is a vital part of the water cycle. Water is taken in from the soil by the roots of trees, pulled up through the xylem cells of the plant right into the leaves, and then released as water vapour through tiny holes called stomata. Plants need transpiration to bring water to their leaves for photosynthesis, to deliver nutrients for leaf growth, and to keep leaves cool in the hot sun. In large forests, transpiration actually feeds water to the sky, supplying part of the rain, which in turn supplies the roots. Scientists studying the largest rainforest in the world – the Amazon in South America – believe that if it were cut down, rainfall would drop so dramatically that the forest could not grow up again. Trees also protect the land beneath from the heat of the sun, the cool of the night, and the fierceness of the wind. We need trees and forests to keep our local climates stable, to protect us.

### Plant a tree by a road

Trees make the air sweeter. They actually filter the air, removing polluting gases and particles pumped out by cars, trucks, buses and motor cycles as they travel down roads. We need trees to cleanse the air of lung-damaging pollutants like nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), and carbon monoxide (CO). One tree can absorb 50-100kg of particulate matter in a year. Trees absorb noise. All in all, trees make the side of the road a nicer place to be!

Water + Light = Chemical Energy



### Trees help prevent Climate Change

Trees are so brilliant they can even help solve one of humanity's most serious problems.

Through photosynthesis, they absorb carbon gases (CO<sub>2</sub>) from the atmosphere. CO<sub>2</sub> acts as a greenhouse gas. Greenhouse gases are causing climate change. All plants absorb and store carbon, but trees and forests are especially important. African rainforest stores billions of tonnes of carbon, protecting us from changes in temperature, rainfall and seasonal patterns that are already upsetting our daily lives. Trees are really on our side in the battle against global warming (see page 140).

Carbon gases are released when wood, oil, gas and coal are burned. The heat energy we get from these fuels comes from the release of the carbon they contain. So when forests are burnt and do not regrow, there is a double problem as even more carbon dioxide ends up in the atmosphere.

**You can read about ways to solve this in the Energy and Climate Change booklet.**