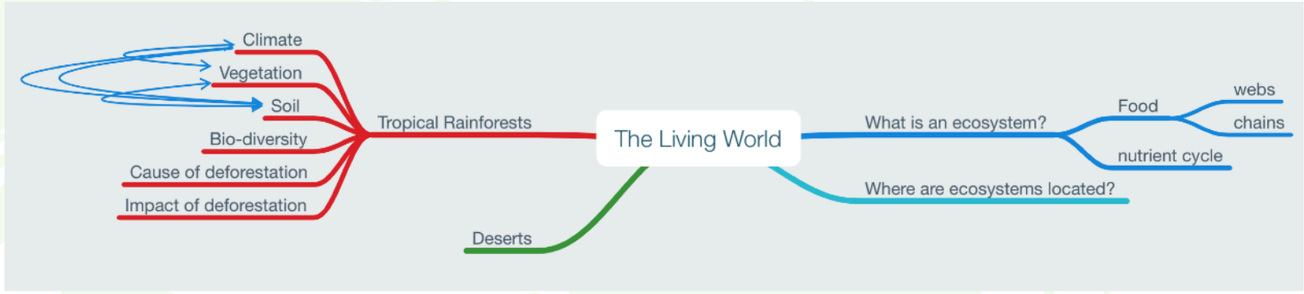
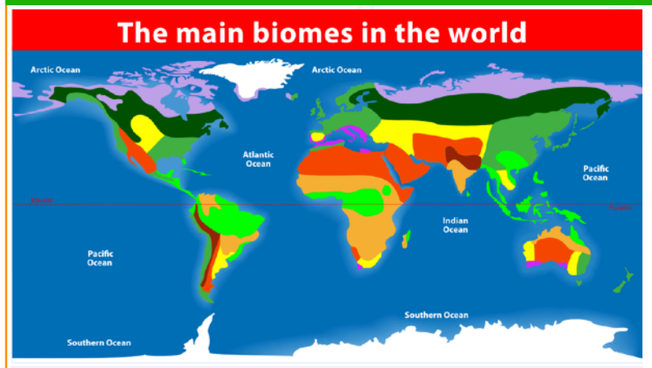
Tropical Rainforest Ecosystem [n].

Knowledge Organiser

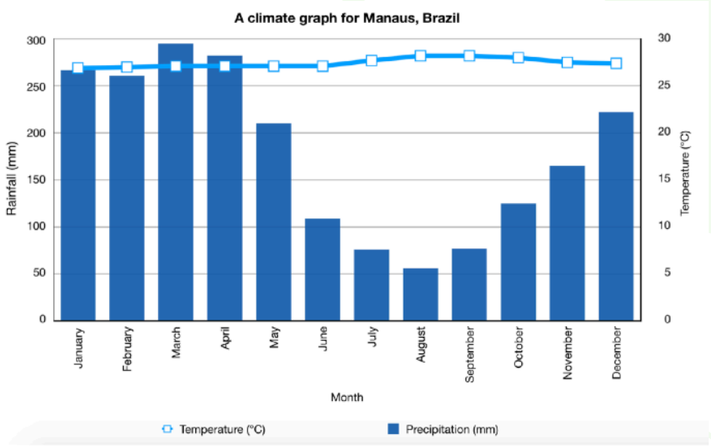


Location.



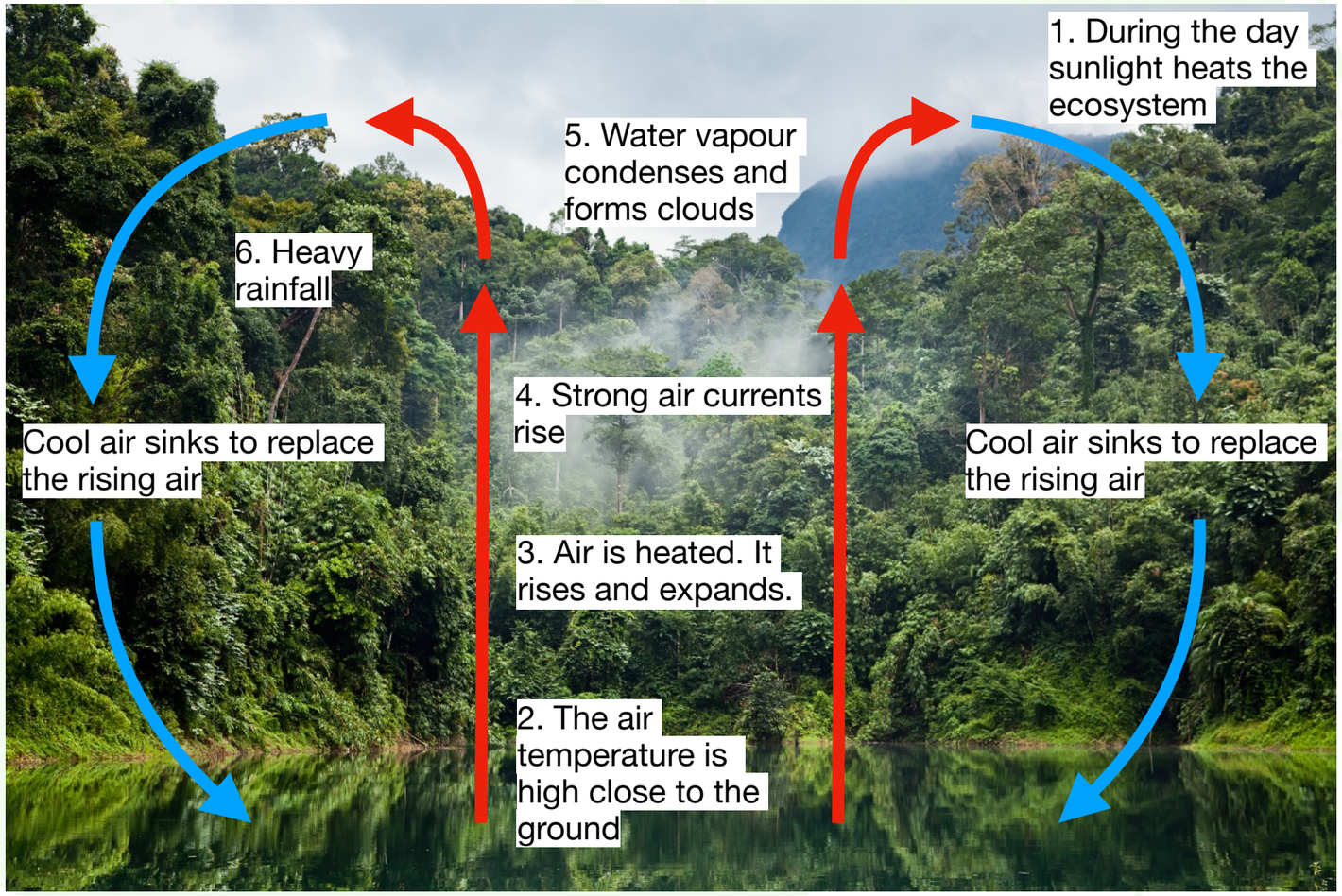
10° north and south of the Equator
The largest rainforests are in Brazil (South America), Zaire (Africa) and Indonesia (South East Asia).
Other tropical rainforest places are in Hawaii and the islands of the Pacific & Caribbean.

Climate.



Average temperatures are around 27 degrees Celsius. Rainfall is over 2000mm throughout the year.

Water Cycle & Rainfall.



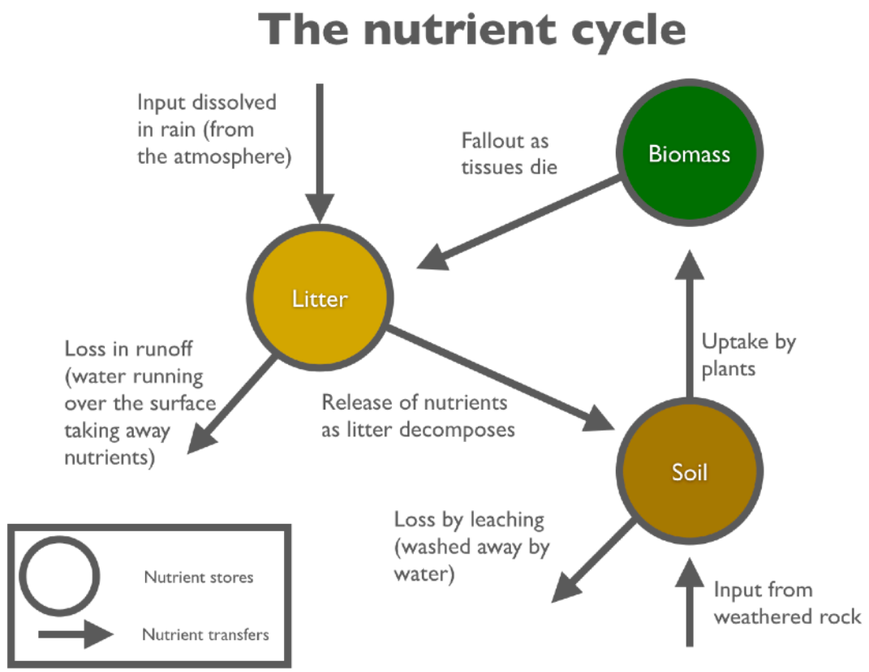
Keywords.

climate / vegetation / soil / biodiversity / evapotranspiration / interception / precipitation / drip flow / stem flow / surface storage / stores / flows / emergent / canopy / under canopy / shrub layer / photosynthesis / epiphytes

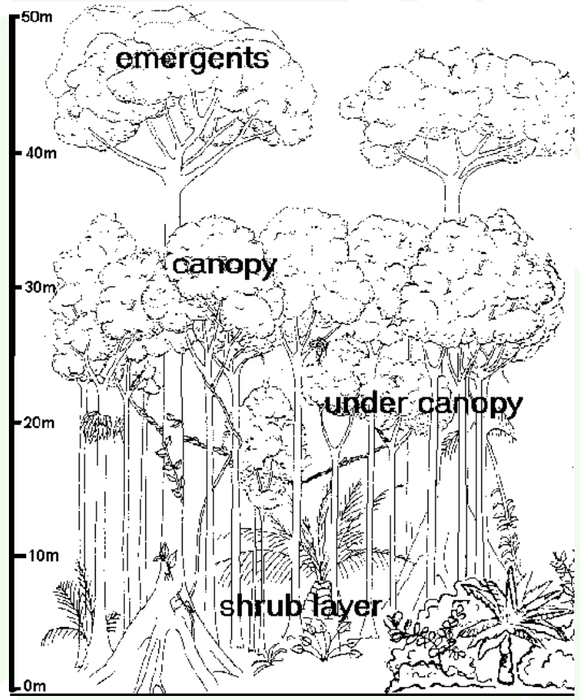
Vegetation Adaptations.

- Competition for light causes trees to grow fast. They are tall and straight. Buttress roots support these tall trees as they have shallow roots because nutrients are only in the top layer of soil because they are rapidly taken up by trees and other vegetation.
- Plants on the forest floor are shade tolerant and able to cope in the darker conditions.
- Epiphytes grow high up on the branches of trees to gain access to the light.
- Lianas wrap themselves around other trees to gain access to light.
- Leaves are thick and waxy and have drip tips so water does not gather and cause algae to grow which can stop photosynthesis from happening.
- The bark of some trees is very smooth which makes it very difficult for other plants to climb up them (the strangler fig can completely cover a tree and cause it to die!)

The nutrient cycle.



Vegetation Structure.



Emergents are the tallest trees and are usually over 50 metres tall. The Kapok tree is an example of an emergent.
The sea of leaves blocking out the sun from the lower layers is called the **canopy**. The canopy contains over 50% of the rainforest wildlife. This includes birds, snakes and monkeys. Lianas (vines) climb to the canopy to reach sunlight. Epiphytes, or air plants, are also found in this layer. An epiphyte is an organism that grows on the surface of a plant and gets its moisture and nutrients from the air, rain, water or from debris gathering around it.
The **under canopy** mainly contains bare tree trunks and lianas. Lianas are vines that climb the vegetation in a bid to reach sunlight.
The **shrub layer** has the densest plant growth. It contains shrubs and ferns and other plants needing less light. Saplings of emergents and canopy trees can also be found here.
The **forest floor** is usually dark and damp. It contains a layer of rotting leaves and dead animals called litter. This decomposes rapidly (within 6 weeks) to form a thin humus, rich in nutrients. Below the rich top soil the soil lacks nutrients. This is because nutrients are rapidly absorbed by vegetation.