

# Cycles of life in the rainforest



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## FACT SHEET 9

### The nutrient cycle

Nutrients are the food materials which plants use to promote growth. **Rainfall** is an essential nutrient. Plants take up other nutrients from the soil through their roots.

In rainforest, parent soil alone does not contain sufficient nutrients to sustain the rapid growth rate of plants. Instead **humous** created from recycled plant

and animal material supplies much of the essential nutrients for plant growth.

The breakdown of dead plant and animal material into humous is the job of millions of organisms, including maggots and ants, fungi, and soil dwellers such as bacteria, isopods, slaters, springtails and earthworms. Without decomposition by these organisms nutrients would be locked up and unavailable to plants.



Rain provides one essential nutrient



- Herbivores eat plants
- Carnivores eat other animals
- Animals die and are eaten by maggots, worms and bacteria



- Leaves and branches fall from plants as litter
- Fungi, termites and soil organisms break them down into nutrients



Soil nutrients taken up by roots

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## FACT SHEET 9 (CONTINUED)

### The food chain

Within the cycle of life in the rainforest there are **producers** and **consumers** of food. As food is cycled from producers through different consumers and finally back into nutrient for producers, it is called a food chain.

**Producers are plants:** Energy from the sun is trapped by plants and used to produce food in the form of leaves, flowers, fruit and woody stems. **First level consumers** eat plants and **second or third level consumers** eat other consumers. **Decomposers** break down dead plant and animal material and recycle it into the soil for more production by plants.

### FOOD CHAIN



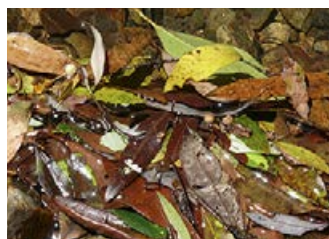
**Herbivores** eat plant material, e.g. **fruit bat**, caterpillar, sugar glider, pigeon, pademelon, honeyeater



**Carnivores** eat other animals, e.g. **carpet python**, spotted tailed quoll



**Insectivores** eat insects, e.g. **golden whistler**, antechinus, grey shrike thrush, bowerbird



Fallen leaves, litter

### DETRITAL FOOD CHAIN



**Producers** – all green plants, e.g. trees, ferns, grasses



Soil with nutrients from the breakdown of plant and animal material



**Detritus decomposers** consume dead plant and animal material, e.g. **worms**, ants, springtails, slaters, bacteria, termites and fungi

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## FACT SHEET 9 (CONTINUED)

### Fungi

Fungi belong to a group of organisms which includes yeasts and moulds, and are separate from plants, animals and bacteria.

### Differences between fungi and green plants

- Fungi feed directly from other organisms, either living or dead and do not produce their own food by photosynthesis as green plants do.
- Fungi reproduce by spores, while green plants produce seeds.
- The cell walls of fungi contain a substance called chitin, unlike the cell walls of plants, which contain cellulose.

### Fungi are decomposers

Fungi play an important role in the food chain by helping to break down dead plant material. Many different fungi grow in the rotting logs and litter of the rainforest floor. The parts of the fungus that you normally see are the fruiting bodies, which may be colourful and odd shaped. Hidden from view are the long, thread-like hyphae which spread through leaf litter or dead wood, using nutrients from these in order to grow. Some fungi colonise living plants or animals.

Some fungi fruiting bodies are luminous in the dark, others produce smells which attract flies, some are round puff balls which explode, and others are like jelly!

### Fungi found at Sea Acres



Log fungi



Earthstar puffball



Coral fungus



Gilled mushroom



Slime mould



Rainbow fungi