

# The Secret Life of Trees

## How Forests Communicate

The hidden underground network where trees talk, share, and take care of each other

■ B1 Reading ■ 30 min ■ World Around Us

<b>Level</b>	B1 (Intermediate)
<b>Skill</b>	Reading
<b>Topic</b>	World Around Us
<b>Duration</b>	30 minutes
<b>Age Group</b>	Teens & Adults

### Learning Objectives

- ◆ Read and understand a text about how trees communicate underground
- ◆ Learn 15 key vocabulary items related to nature and biology
- ◆ Identify the role of fungal networks in forest ecosystems
- ◆ Discuss implications for conservation and forestry
- ◆ Write a creative paragraph from a tree's perspective

## 1 Before You Read — Forest Thoughts

Think about trees and nature and discuss:

1. When was the last time you walked through a forest? How did it make you feel?
2. Do you think trees are just silent objects, or could they be more complex than we think?
3. Why are forests important for the planet?

## 2 Reading: The Wood Wide Web

### The Wood Wide Web: Nature's Hidden Internet

When you walk through a forest, you see individual trees standing quietly in their own space — separate, independent, and silent. But beneath your feet, something extraordinary is happening. Underground, the roots of trees are connected by a vast **network** of tiny fungal threads called **mycelium**, forming a communication system so complex that scientists have nicknamed it the "Wood Wide Web." Through this hidden network, trees share food, send chemical warning signals, and even recognise and care for their own family members.

This discovery has revolutionised the way scientists think about forests. Trees are not the lonely **individuals** we once imagined — they are social beings that live in **communities**, cooperate with each other, and depend on their neighbours for survival. The forest, it turns out, is less like a collection of separate plants and more like a single, interconnected **organism**.

### How Trees Talk Underground

The communication system works through a **partnership** between tree roots and fungi. The fungal threads — thinner than a human hair — wrap around and sometimes penetrate the tree's roots, creating a connection that benefits both species. The tree provides the fungus with sugars produced through **photosynthesis**. In return, the fungus extends the tree's root system by hundreds of times, helping it absorb water and essential **nutrients** from the soil that its own roots could never reach.

But this relationship goes far beyond simple resource exchange. Scientists have discovered that trees use the fungal network to send **chemical signals** to each other. When a tree is attacked by insects, it can release warning chemicals through its roots and the mycelium network, alerting neighbouring trees to the danger. Those neighbours then begin producing defensive chemicals in their leaves *before* the insects even arrive — a form of communication that is both faster and more targeted than anything scientists expected.

## Mother Trees

Perhaps the most touching discovery is the concept of "mother trees." In every forest, the oldest and largest trees — the mothers — act as central **hubs** in the underground network. They are connected to hundreds of other trees and play a crucial role in the health of the entire forest. Research has shown that mother trees can recognise their own **offspring** among the surrounding seedlings and send them extra sugars and nutrients through the fungal network, giving them a better chance of survival.

When a mother tree is dying, something remarkable happens: she transfers her remaining resources — carbon, nutrients, and even defensive chemicals — to the younger trees around her, as if passing on her **legacy** to the next generation. This behaviour challenges the traditional view of nature as purely competitive. In the forest, cooperation is just as important as competition.

## Forests That Warn and Heal

The communication network also helps forests **recover** from damage. When a tree is cut down or falls in a storm, neighbouring trees can keep its stump alive for decades by sending it sugars through the fungal network. Scientists have found living stumps with no leaves and no ability to photosynthesise, surviving entirely on the generosity of their neighbours. The forest, it seems, does not abandon its members.

Trees can also use the network to share water during **droughts**. Researchers in a Canadian forest discovered that paper birch trees, which have deep roots, were transferring water to Douglas fir trees during dry summers — and in return, the Douglas firs shared carbon with the birches during the shady winter months. This seasonal exchange shows a level of mutual support that is surprisingly similar to human cooperation.

### Why This Matters

Understanding how forests communicate has important **implications** for conservation. Traditional forestry practices — which treat trees as isolated products to be harvested individually — disrupt the underground network and weaken the entire forest. When mother trees are removed, the young trees they supported often struggle and die. Scientists now argue that sustainable forestry must protect the fungal network and the key hub trees that hold the community together.

The secret life of trees reminds us that nature is far more connected, intelligent, and **cooperative** than we once believed. Every tree in a forest is part of a community, linked to its neighbours in ways we are only beginning to understand. The next time you walk among trees, look down — beneath your feet, the forest is talking.

## 3 Key Vocabulary

Word / Phrase	Definition	Example Sentence
<b>network</b>	a system of connected things or people that work together	Trees are connected by an underground network of fungal threads.
<b>mycelium</b>	the mass of tiny fungal threads that grow underground	Mycelium connects tree roots and allows them to share resources.
<b>individuals</b>	single, separate beings	Trees are not lonely individuals — they live in communities.
<b>communities</b>	groups of living things that live and interact together	Forests function as communities where trees support each other.
<b>organism</b>	a living thing, such as a plant, animal, or fungus	A forest behaves like a single interconnected organism.

Word / Phrase	Definition	Example Sentence
<b>partnership</b>	a relationship where two sides work together for mutual benefit	Trees and fungi have a partnership that benefits both species.
<b>photosynthesis</b>	the process by which plants use sunlight to make food	Trees provide fungi with sugars produced through photosynthesis.
<b>nutrients</b>	substances that plants or animals need to grow and live	The fungal network helps trees absorb nutrients from the soil.
<b>chemical signals</b>	messages sent through chemical substances	Trees send chemical signals through their roots to warn neighbours.
<b>hubs</b>	central or most important points in a network	Mother trees act as central hubs in the underground network.
<b>offspring</b>	the young or children of a plant or animal	Mother trees can recognise their own offspring and help them.
<b>legacy</b>	something valuable passed from one generation to the next	Dying mother trees pass their legacy to younger trees.
<b>recover</b>	to return to a normal or healthy state after damage	The fungal network helps forests recover from storms and disease.
<b>droughts</b>	long periods without rain, causing water shortage	Trees share water through the network during droughts.
<b>cooperative</b>	involving people or things working together	Forests are far more cooperative than scientists once believed.

## 4 Useful Collocations

underground network · fungal threads · root system · chemical signals · mother tree · natural habitat · climate change · carbon dioxide · old-growth forest · forest floor · tree species · soil quality · water supply · ecological balance · biodiversity · conservation effort

## 5 Reading Comprehension

**1. What is the 'Wood Wide Web'?**

- a) A website about forestry
- b) An underground network of fungal threads connecting trees ✓**
- c) A social media platform for scientists
- d) A type of spider web found in forests

**2. What do trees give to fungi in their partnership?**

- a) Water and minerals
- b) Sugars produced through photosynthesis ✓**
- c) Defensive chemicals
- d) Shelter from rain

**3. How do trees warn each other about insect attacks?**

- a) By shaking their branches
- b) By dropping their leaves
- c) By sending chemical signals through the fungal network ✓**
- d) By making sounds that humans cannot hear

**4. What do 'mother trees' do for their offspring?**

- a) They block sunlight from other trees
- b) They send extra sugars and nutrients to help them survive ✓**
- c) They grow taller to protect them from wind
- d) They produce special flowers

**5. How can a tree stump survive for decades without leaves?**

- a) It absorbs sunlight through its bark
- b) It receives sugars from neighbouring trees through the network ✓**
- c) It lives on water alone
- d) It is not really alive — it just looks alive

**6. Why should forestry practices protect mother trees?**

- a) Because mother trees are the most beautiful
- b) Because removing them disrupts the network and younger trees may die ✓**
- c) Because they produce the best timber
- d) Because they are protected by law everywhere

**6****Vocabulary Exercise — Fill in the Blanks**

Complete the sentences with the correct word from the box:

**network · nutrients · chemical signals · partnership · offspring · cooperative · recover · droughts**

1. Trees are connected by a vast underground \_\_\_\_\_ of fungal threads.
2. The fungal system helps trees absorb water and essential \_\_\_\_\_ from the soil.
3. When attacked by insects, trees send \_\_\_\_\_ to warn their neighbours.
4. The relationship between trees and fungi is a \_\_\_\_\_ that benefits both.
5. Mother trees can recognise their own \_\_\_\_\_ and send them extra food.
6. Forests are far more \_\_\_\_\_ than scientists previously believed.
7. The fungal network helps damaged forests \_\_\_\_\_ after storms.
8. Trees share water with their neighbours through the network during \_\_\_\_\_.

## 7

### Answer Key

#### ■ Vocabulary Exercise Answers

1. network
2. nutrients
3. chemical signals
4. partnership
5. offspring
6. cooperative
7. recover
8. droughts

## 8

### Speaking & Writing Tasks

#### ■ ■ Speaking Task: Discussion

Discuss these questions with a partner or your teacher:

- Were you surprised to learn that trees communicate? Which fact impressed you most?
- Do you think we should change the way we manage forests based on this research?
- How does learning about tree communication change the way you see nature?
- What can humans learn from the way trees cooperate with each other?

### ■ Useful Phrases for Describing Natural Processes

- **What fascinated me most is that** trees can recognise their own family members.
- **Scientists have discovered that** the underground network works like a natural internet.
- **This is important because** cutting down mother trees can destroy the entire network.
- **It is surprising that** tree stumps can survive for decades without any leaves.
- **What this research shows is that** forests are communities, not just collections of trees.

### Writing Task: If Trees Could Talk

Write a paragraph (120–160 words) about this topic:

**"Imagine you are a tree in a forest. Describe your life — your neighbours, the underground network, the seasons. What would you want humans to know about forests?"**

Use vocabulary from this lesson. Be creative and include facts you learned from the text. Write from the tree's perspective.