

The Magic and Mystery of Trees

By Jen Green

The Wood Wide Web



Trees like to keep in touch with each other. Experts have found out that it's not just roots that link the trees in a forest. They are also connected through fungi – the living things we know as mushrooms.



The Fungal Network

Fungi are a bit like plants, but they cannot make their own food. Instead, they make a network of threads called hyphae (pronounced hi-fee) which break down food. The hyphae can swap food, water, and even messages with tree roots.





Mushrooms
and toadstools
are the fruits of
the fungus.

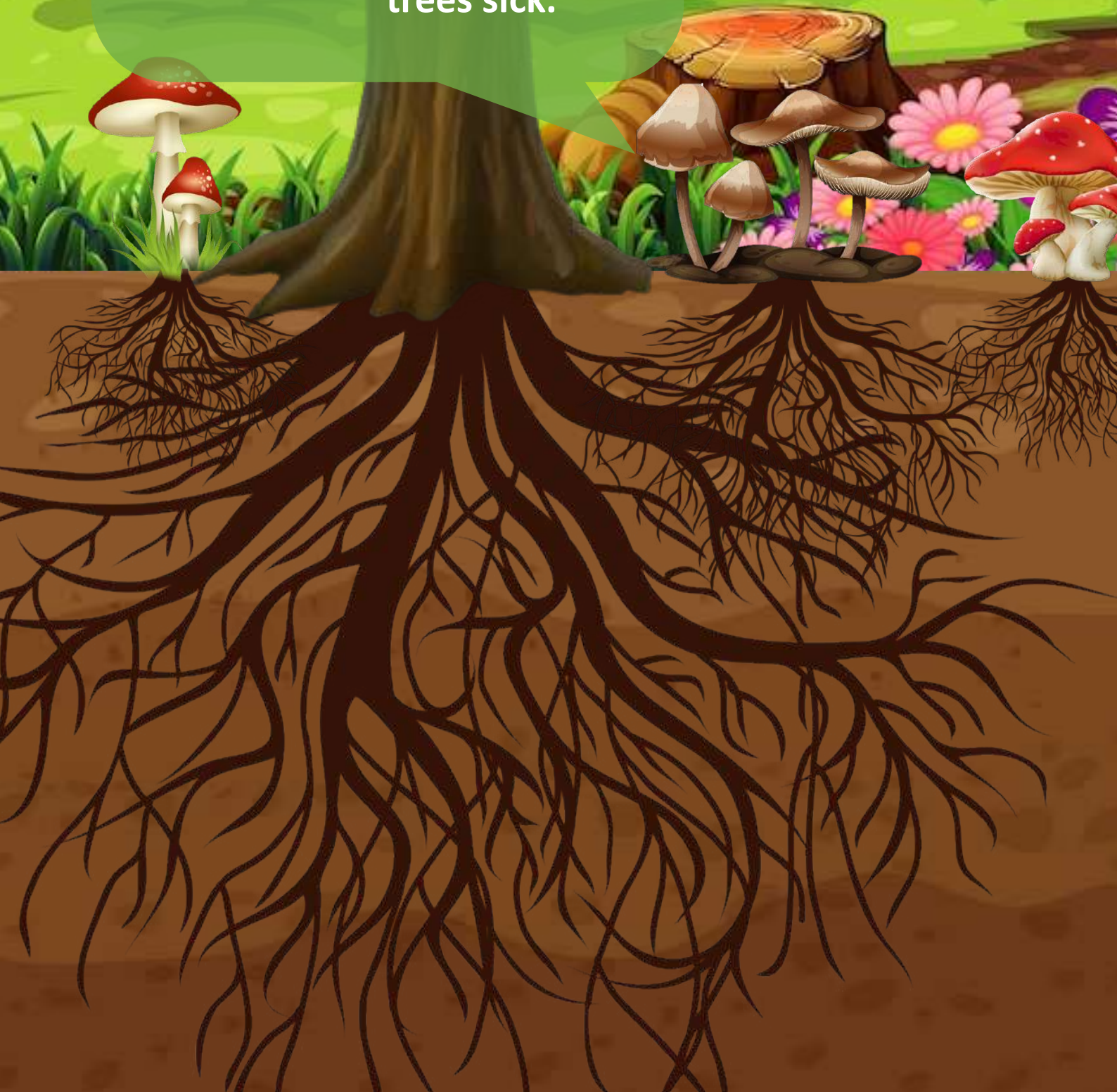
Hyphae

Fungus

Tree Roots



Fungi help trees by
cleaning up
pollution and
warding off other
types of fungi that
would make the
trees sick.





In return for the nutrients from the fungal network, trees gift water and food to the fungi.



Food &
Water

Nutrients

Forest Family



Trees of the same species act as a family. When a seedling is struggling its mother steps in to help. Trees that are very old, or damaged, are not forgotten. Even the strongest trees can be attacked by disease or insects and need help every now and then. By helping each other, the forest as a whole stays strong.






Caring Mothers

Full-grown trees take care of younger and older trees. Many young trees sprout directly below the mother tree. But the youngsters don't grow well in her shade. The mother keeps them alive by passing them sap and nutrients until they are tall enough to find the light.



Tiny Seedling



Older trees often block light from reaching younger ones. Far from damaging them, it turns out to be helpful, as growing slowly when they are young helps trees to live longer.



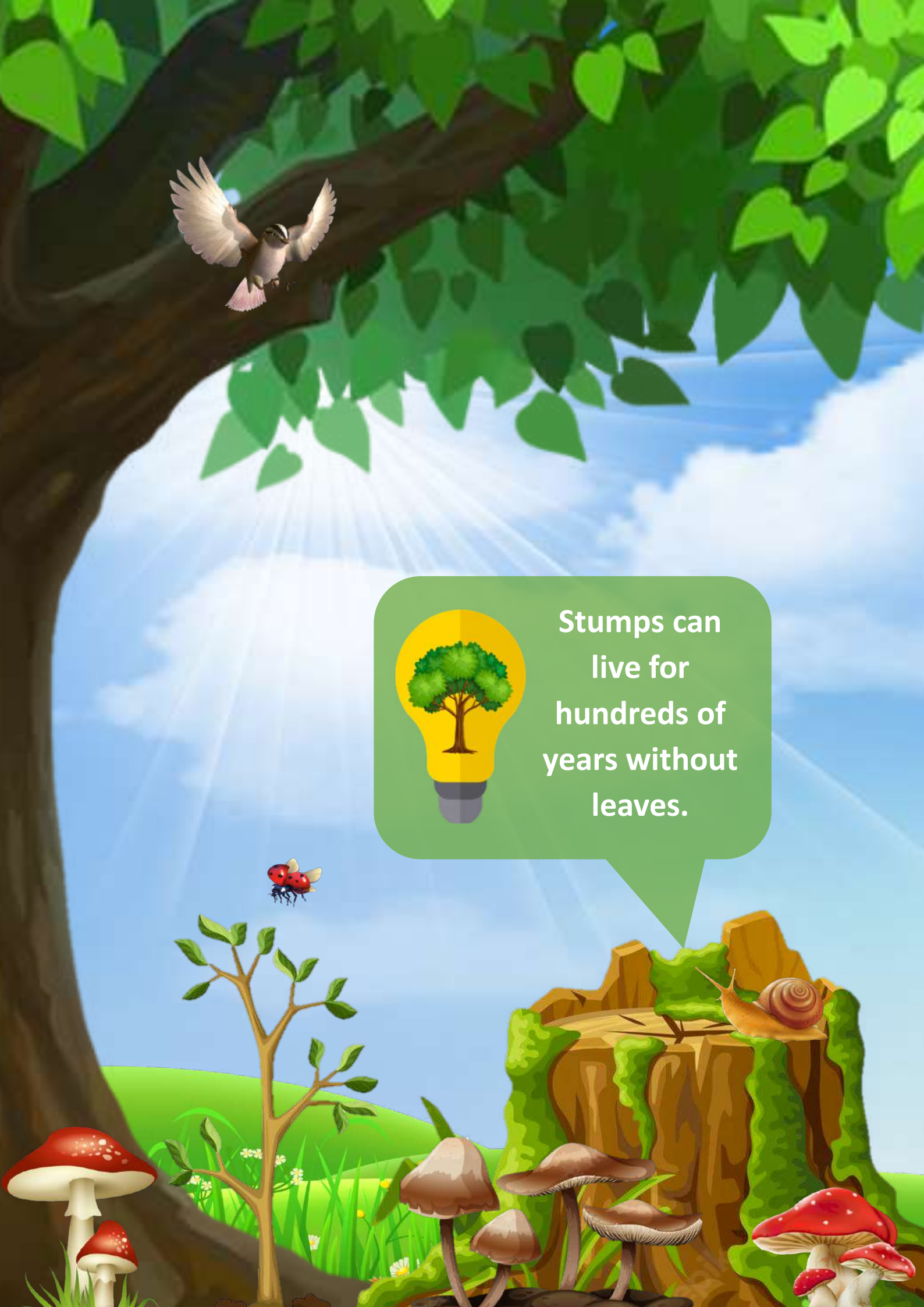
Helping Hand

This stump can't make food without leaves, but somehow it is still alive. The trees of the forest are feeding the old stump through their roots. This stump might even be the full-grown tree's mother.

Old Tree
Stump



Stumps can
live for
hundreds of
years without
leaves.



Five Senses



A tree doesn't have eyes, ears, fingers, or toes. Because they're so different to us, for a long time no one knew trees had senses. But now we know that they can tell what's going on around them.



Trees Can Sense the World Around Them ...



Touch

Tree roots are amazingly sensitive. A tree can tell which roots in the underground tangle are its own. It can also tell whether its neighbours are the same type of tree.





Hot and Cold

Trees can sense how hot or cold it is. Even tiny seeds know if the temperature has become warm enough for them to sprout and start growing.





Taste

When an animal nibbles on a leaf, the trees can taste the animal's spit! Trees can even tell different animals apart from the taste of their spit.



Hearing



Roots can hear the sound of running water and grow towards it. Even when it is completely sealed off, the trees know the water is there. We don't yet know how they do this.



Seeing



They may not have eyes, but trees can certainly sense light and grow towards it. Every leaf on a tree can tell which direction the light is coming from. After all, they need light to make food.



Time



Trees live life in the slow lane, but they do keep track of time. In spring, trees can sense the days getting longer. In autumn, they know the days are shorter and prepare for winter.



And Trees Can Even Talk Back ...



Talking

Trees can talk to insects using sights and smells. The colours and scents of flowers are like neon signs telling bees and butterflies that food is on offer.



Being Themselves



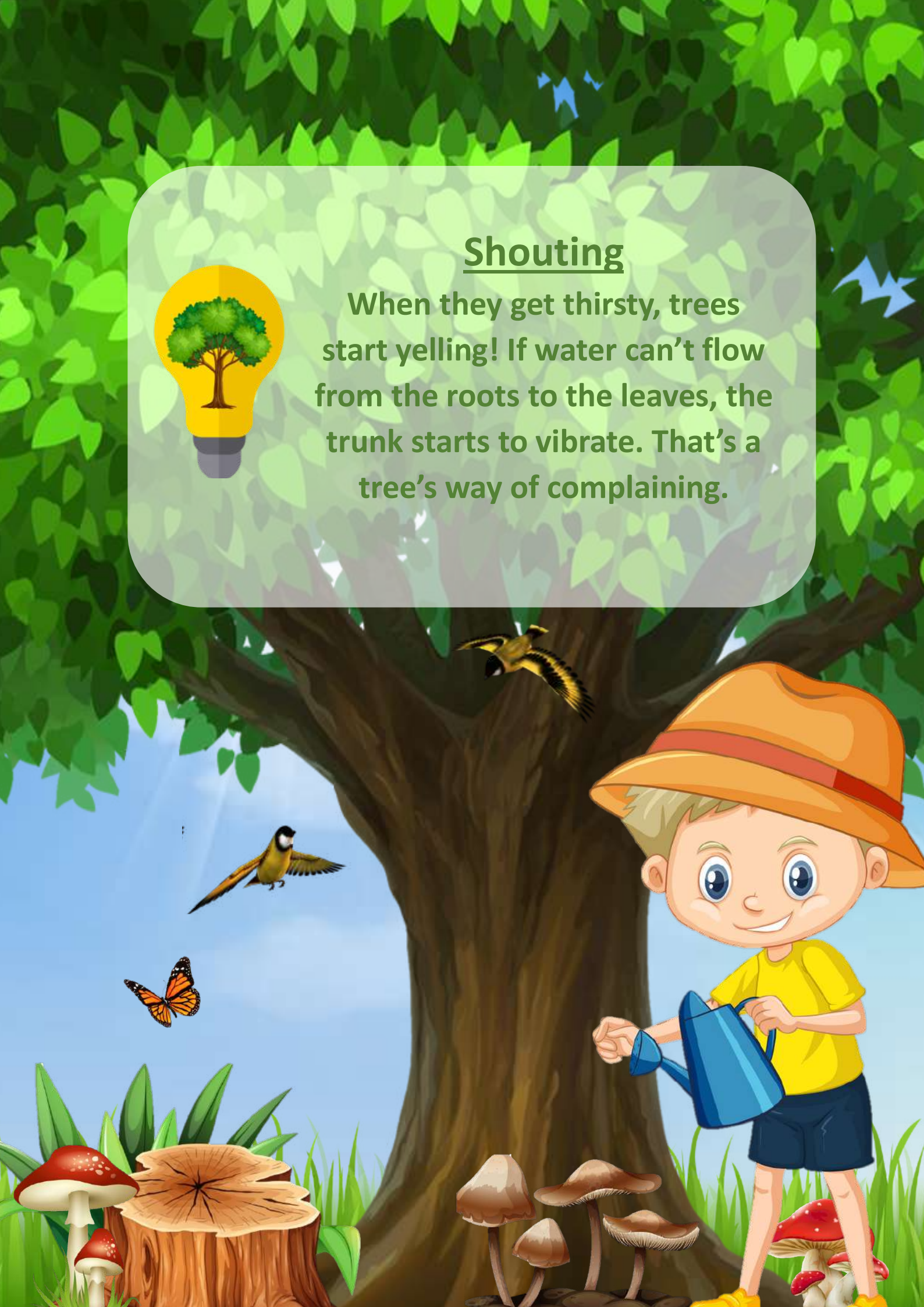
No two trees are exactly the same. Even if they're in the same conditions, trees will grow into different shapes. Some trees take part in the wood wide web, while others are loners.





Shouting

When they get thirsty, trees start yelling! If water can't flow from the roots to the leaves, the trunk starts to vibrate. That's a tree's way of complaining.



We are only just beginning to uncover all the mysteries of what trees can sense. Scientists are beginning to research how trees “think”, using their roots like a brain.





THINK

DIGITAL ACADEMY