

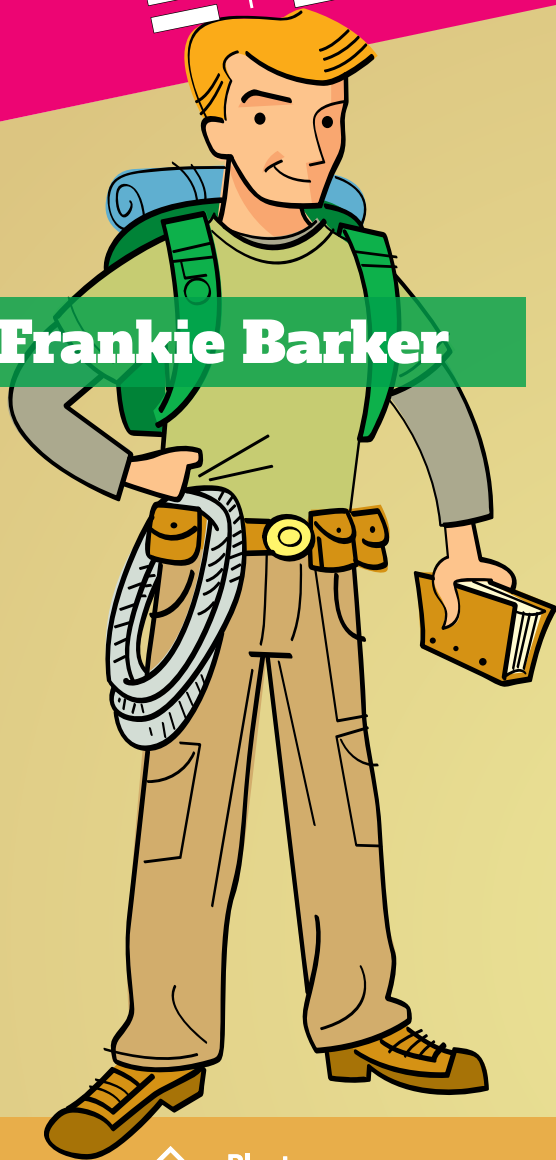


Help the Plant Heroes protect our forests
by slowing the spread of pests and diseases!

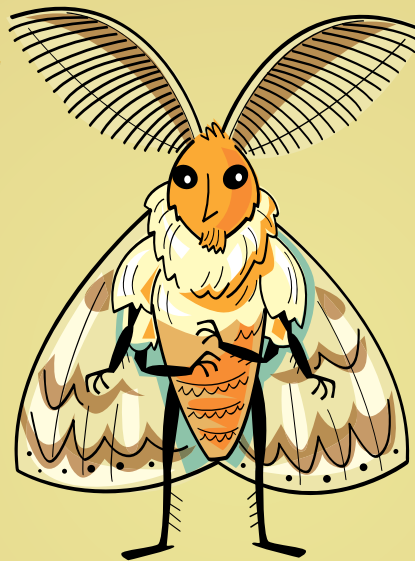
INSECT | SPONGY MOTH

PLANTHEROES.ORG
BEGINNER
ACTIVITY
BOOK

Frankie Barker



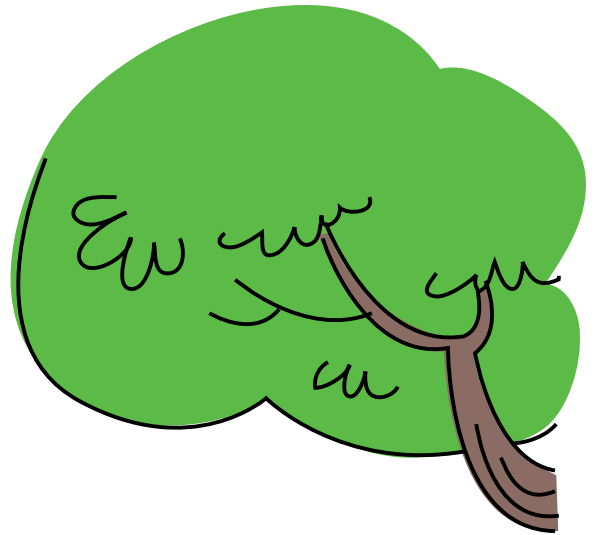
BE A PLANT HERO!
Help Frankie slow the
spread of the spongy
moth!



Plant
Protection
Program

AMERICAN PUBLIC GARDENS ASSOCIATION

Meet the PLANT HEROES!



LAURA WILKINS

From: Athens, Georgia
Hobbies: playing the trumpet,
gardening, studying ecology

FRANKIE BARKER

From: Shrewsbury, Massachusetts
Hobbies: climbing trees, camping

NATE GREEN

From: Tacoma,
Washington
Hobbies: going on
adventures, learning
about fungi

APONI STAR

From:
Southeast
Illinois
Hobbies:
learning
more about
entomology (the
study of insects)



plantheroes.org

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The Plant Heroes are four friends who love spending time in nature more than anything else! They enjoy climbing trees, walking trails, and camping.

The heroes are learning about why our forests are in danger. There are insects and fungi that can impact trees, sometimes affecting the health of whole forests. Trees may become sick or die when they are weakened by an invasive species, a living thing that is introduced to a new environment where it can cause damage to existing organisms.

Follow Frankie to learn the story of how he helped slow the spread of the spongy moth, known as the hairy lizard in several Spanish speaking countries.

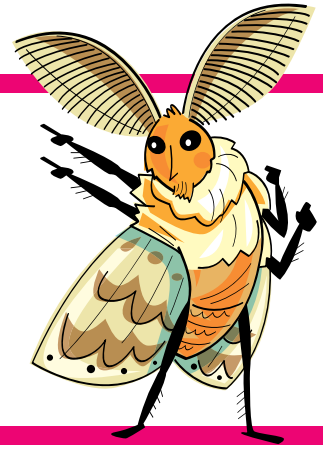


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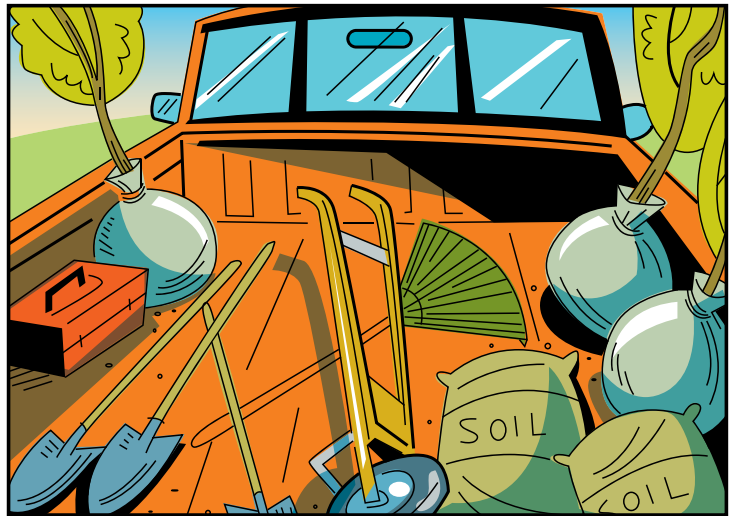
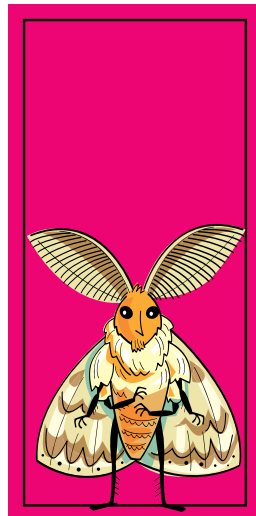
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STOPPING THE SPREAD WITH FRED

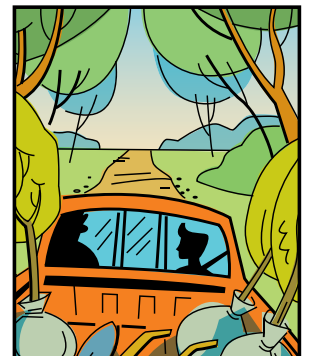
Before heading back to school in late August, Frankie pays a visit to his Uncle Fred in Cleveland to help him with a big landscaping job on the other side of Ohio, in Columbus.



Planting trees, hanging out with family and hard work? Check! Frankie is all in on this venture!



Frankie checks the equipment list and helps load the rakes, shovels, and other landscaping equipment onto the flatbed. They drive down the long, narrow, tree-lined road out to the highway for the big job.

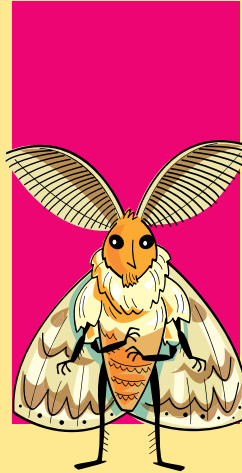
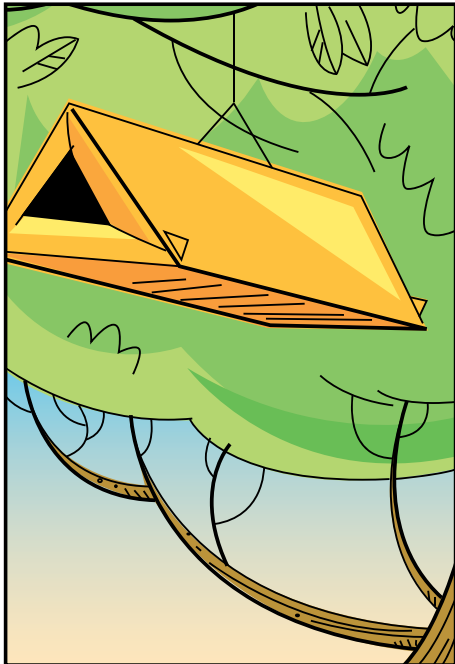


As Frankie and Fred leave Fred's Landscaping, Frankie notices a triangular box hanging in a tree. "Hey Uncle Fred, I think I just saw some debris in a tree on your property!" "No, Frankie, that is a pheromone trap for the spongy moth. I just found out that there is a spongy moth infestation in the area where I live. I gave the Department of Agriculture permission to place the trap to keep track of progress." "Oh, OK just a pheromone trap you say..."



STOP THE FLATBED!

Frankie tells Uncle Fred that Columbus is a spongy moth free zone, and that they should check all the landscaping equipment to see if there are any moth egg clusters.



After a careful check, Fred finds an egg cluster on the side wheel of the wheel hoe. Frankie and Fred work to get rid of the cluster and dispose of it properly.



Later that day, Frankie and Fred join the Plant Heroes team to confidently plant new trees in Columbus Park, while knowing the threat of spreading spongy moth is no longer present!

The Plant Heroes are brought to you by the American Public Gardens Association. This comic was developed with financial support from the USDA – Animal and Plant Health Inspection Service and reproduced with financial support from the USDA – Forest Service. Play games and learn how you can protect plants at plantheroes.org.



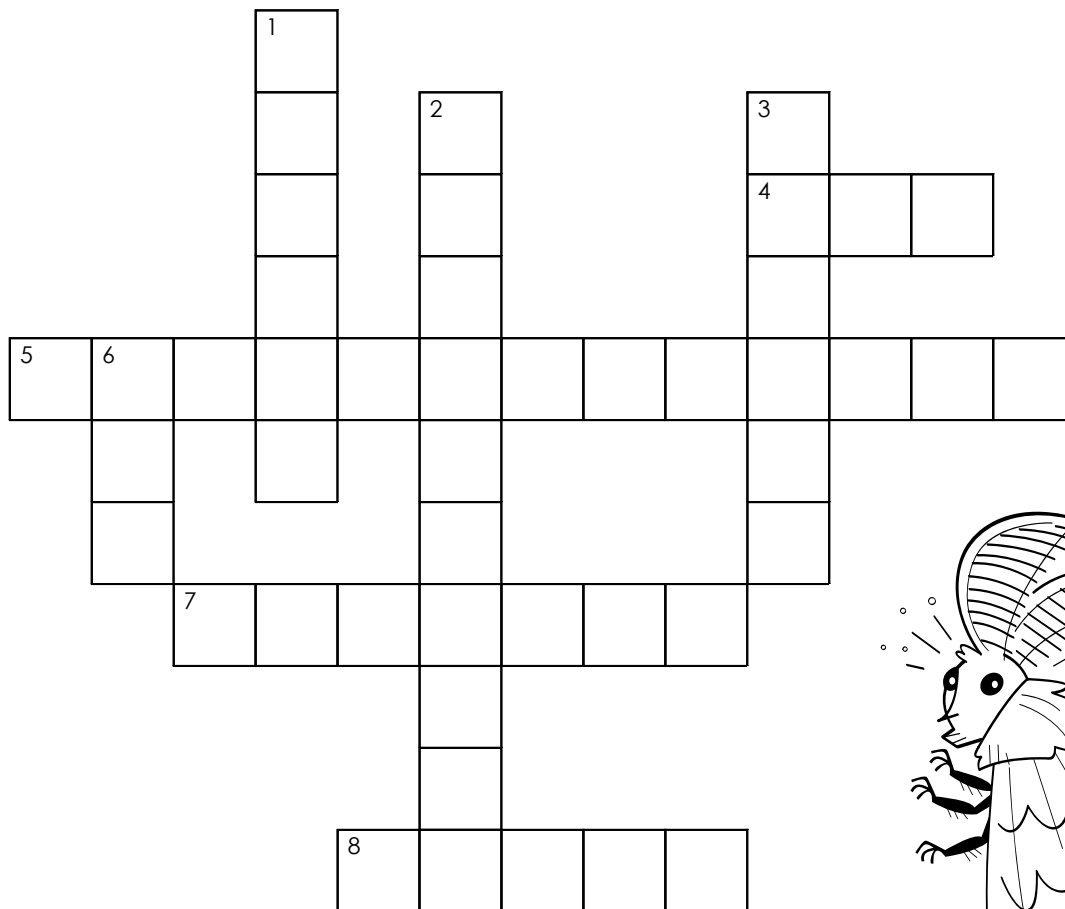
A Day in the Life of a Caterpillar

Use the word bank to fill in the blanks of this story and solve the crossword puzzle below!

WORD BANK:

LARVAE, ADULT, OAK, METAMORPHOSIS, EGG, DEFOLIATED, PUPATES, COCOON

A caterpillar wriggles free of her 1) _____ to join her hundreds of brothers and sisters. Now that they hatched from their eggs, all the 2) _____ are extremely hungry. Fortunately, their mother laid her eggs on an 3) _____ tree, and the caterpillars quickly climb to the top to find some tasty leaves. It's not long before the branch is 4) _____ and the caterpillars must move higher in the tree to find more food. Someday, the caterpillar will go through 5) _____ to enter her last stage of life. The caterpillar will wrap herself in a 6) _____ for protection while she 7) _____. When she emerges, she'll be an 8) _____ and ready to lay her own egg cluster.

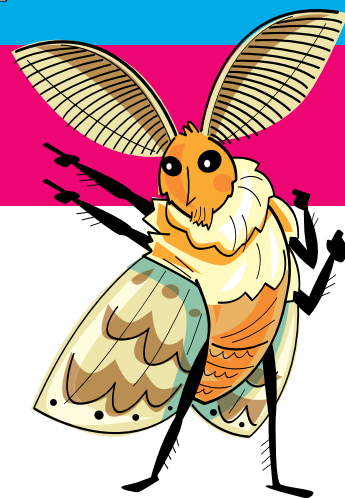


COLOR THE SPONGY MOTH!



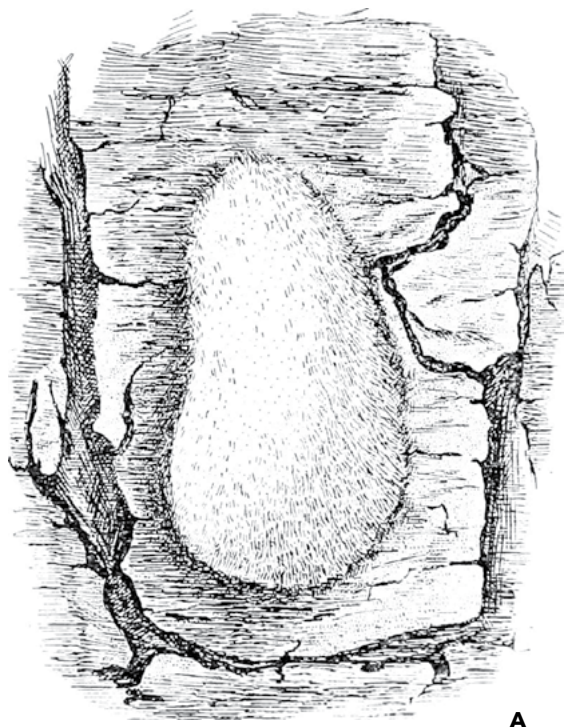
Metamorphosis Time!

The spongy moth has four different life stages, and the process of the egg changing into an adult is called “**metamorphosis**.” Learn more about the four stages of the moth’s life cycle by coloring in the stages below.

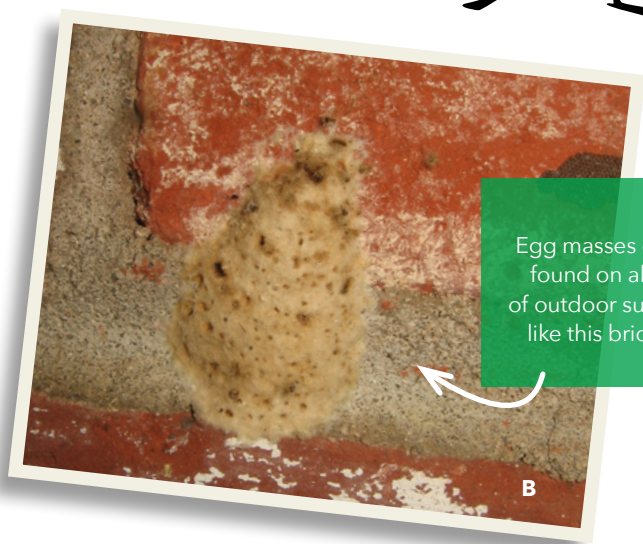


STAGE 1:

The spongy moth starts out as an egg inside a tan-colored egg cluster.



A



Egg masses can be found on all kinds of outdoor surfaces, like this brick wall!

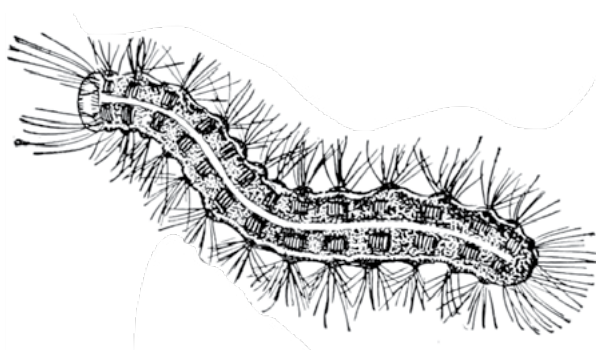
B



C

STAGE 2:

The egg hatches and a larva (caterpillar) emerges! These caterpillars are extremely hungry and will begin to defoliate trees (which means to strip a tree of its leaves). You can identify a spongy moth caterpillar by the five pairs of blue dots and six pairs of red dots that run down its back.



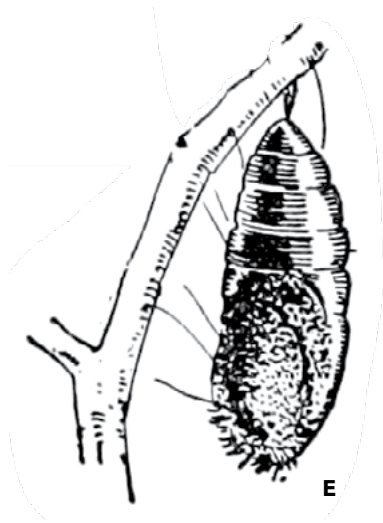
D



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STAGE 3:

After feasting on leaves, the caterpillar enters a resting period called “pupation.” During pupation, it will turn into an adult. The caterpillar pupates inside a cocoon, which is like a little home to protect it while it metamorphosizes.

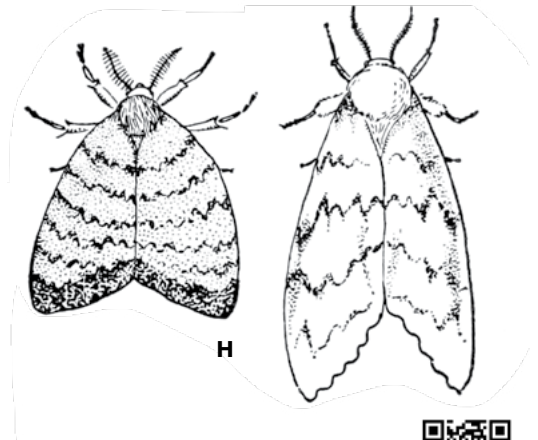


HANDY TIP!
Add an “e” at the end of larva or pupa if you are talking about more than one larva or pupa!



STAGE 4:

The caterpillar that entered the cocoon emerges as an adult moth. Female moths are white and male moths are brown with large feathery antennae! Check out a photo of their antennae on page 2 of your field guide.



Scan this QR code or type bit.ly/mothmetamorphosis to watch metamorphosis in action!



Try this at home!

IMPORTANT! Wear gloves during this activity so you don't touch the hairs of the egg clusters. Sometimes the hairs can make your skin itch.



Have you noticed spongy moth egg clusters on the trees near you? You can help remove these egg clusters and save our trees! Ask an adult to help you with this project.

To remove egg clusters, take a butter knife or paint scraper and gently scrape them from the bark of the tree. Be careful not to hurt the bark! Put these egg clusters in a bucket of warm soapy water for a day or two before throwing them away. Thanks for being a plant hero!



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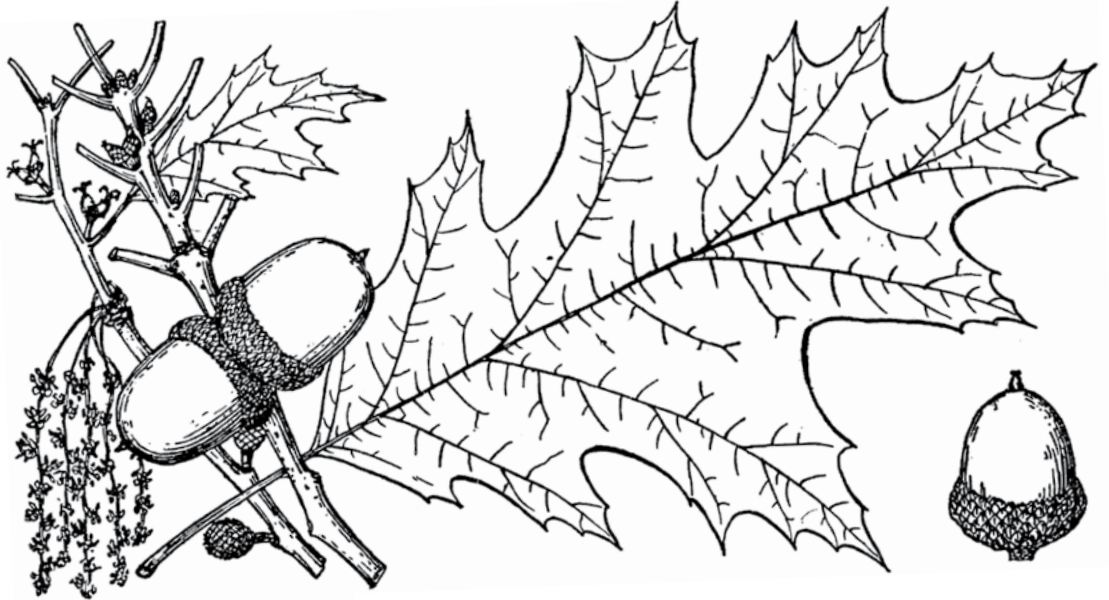
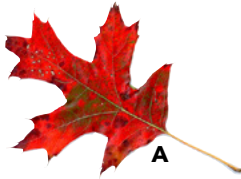
PHOTO CREDITS: E: Gruenberg, Benjamin C.; F: Seabrooke Leckie, Flickr.com; G: Gruenberg, Benjamin C.; H: USDA APHIS PPO, Bugwood.org; I: Karla Salp, Bugwood.org.

A Meal Fit for a Moth

Just like you, spongy moths have favorite foods. Below are some of the trees that spongy moths enjoy. Can you find any of these leaves on trees near you? COLOR THE LEAVES AND TRY TO MATCH THE COLORS YOU SEE IN THE EXAMPLE PICTURES!

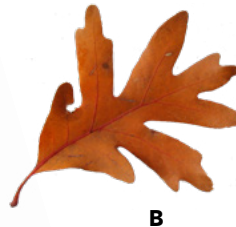
RED OAK

This tall tree produces acorns. Its leaves are usually dark green and shiny with pointy edges. They only turn red in the fall.



WHITE OAK

This tree is also tall with deep ridges in its bark. Its leaves have rounded edges. It also produces acorns—if you find acorns, you know you've spotted an oak!



**COLOR
FRANKIE!**



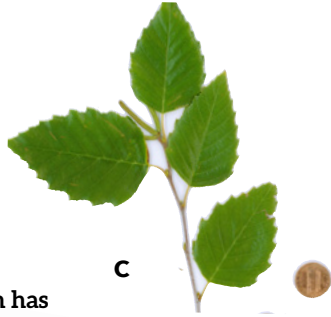
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BIRCH

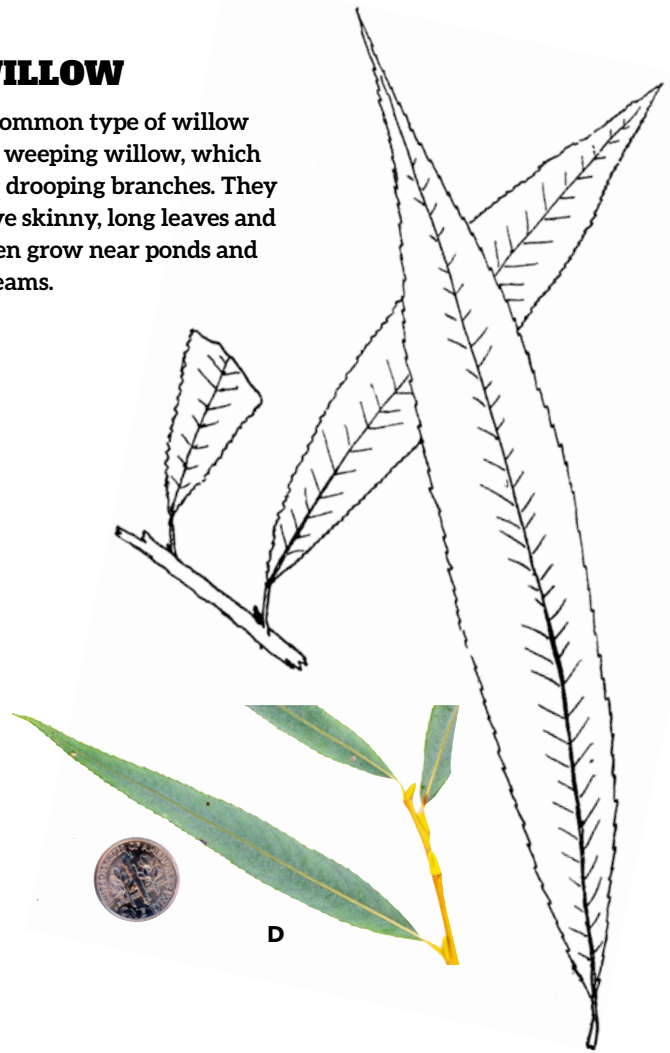
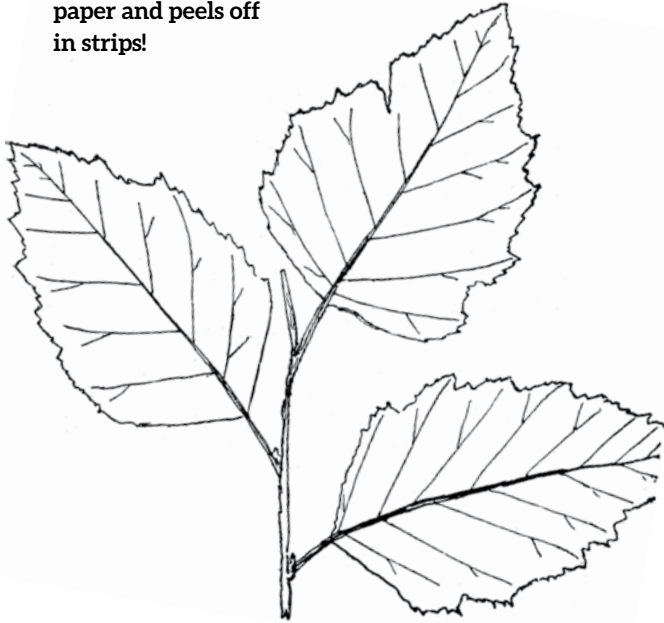
This tree often has bark that looks like paper and peels off in strips!



C

WILLOW

A common type of willow is a weeping willow, which has drooping branches. They have skinny, long leaves and often grow near ponds and streams.



D



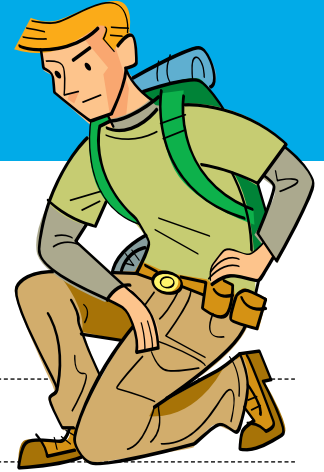
E

BEECH

Beech trees are tall and have smooth, light-gray trunks with wrinkles; like elephant skin!



Time to Journal



The coolest thing I learned in this book is

My favorite tree that the spongy moth likes to eat is

If I could be only one life stage of the spongy moth (egg, larva, pupa, adult), I would be

Have you spotted any moths near where you live?
Draw a picture below if you can spot one!





Join our team of Plant Heroes and learn about trees, forests, and the natural world around you!

PLANTHEROES.ORG

You can be a Plant Hero!

Are you curious about plants and animals? Do you like asking questions about nature? Do you enjoy being outdoors and having fun, climbing trees, balancing on logs, or finding a new butterfly or beetle? If so, you are already on your way to becoming a Plant Hero! We invite you to join forces with Nate, Laura, Aponi, and Frankie to protect the plants and ecosystems we all love.

How can you become a Plant Hero?

Join our team and go on a journey with Nate, Aponi, Laura, and Frankie. As a Plant Hero, you will learn to notice when plants are in trouble. You will also find out ways you can act quickly to help find solutions in your own neighborhood. Follow their adventures and learn how they help plants and ecosystems stay healthy.

On the Plant Heroes website, you will find materials to help you learn about plants, forest health, and ecosystem balance. The more you know, the more you can help protect plants and ecosystems in your own yard, neighborhood, and community!

Plant Heroes strives to spark curiosity about nature and science in all children. Our program provides hands-on, nature-based learning materials for educators to engage children in topics of plant health, ecosystem balance, and forest health. We also spotlight the amazing work our public gardens do in protecting the plants and ecosystems we all depend on through our website and printed materials. Visit plantheroes.org today to learn more!

Plant Heroes is brought to you by the American Public Gardens Association, founded in 1940. Over the last eight decades, the Association has supported the work of public gardens in North America and beyond. Our mission is to champion and advance public gardens as leaders, advocates, and innovators in the conservation and appreciation of plants. Our vision is "A world where public gardens are indispensable" as they provide botanic, conservation, community, education, and economic resources to their community.

The Association is committed to increasing the knowledge of public garden professionals throughout North America through information sharing, professional development, networking, public awareness, and research, so that they have the tools to effectively serve visitors and members.



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