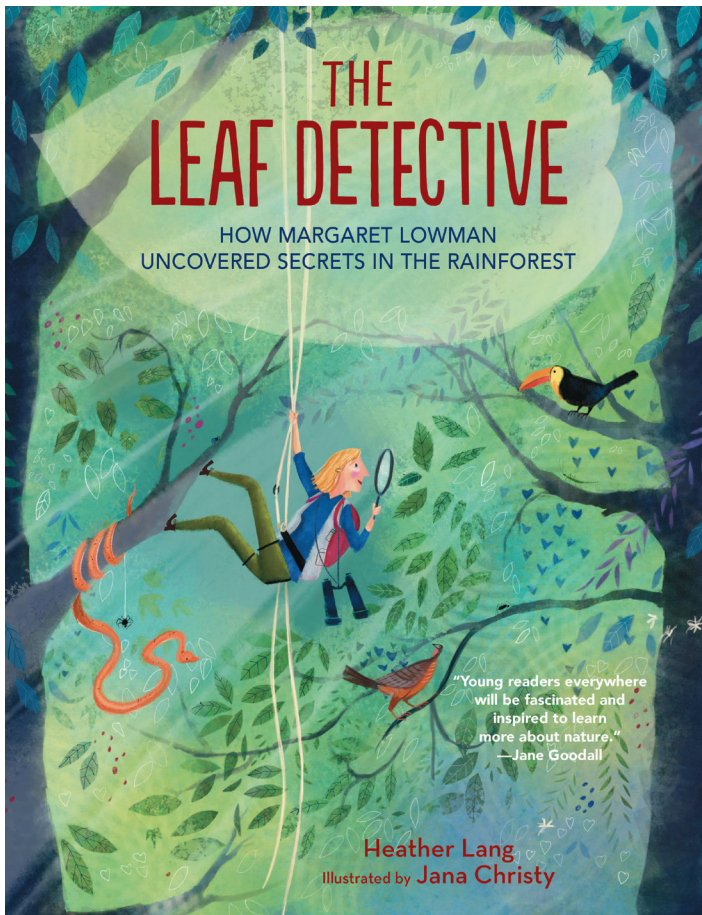


THE LEAF DETECTIVE

HOW MARGARET LOWMAN
UNCOVERED SECRETS IN THE RAINFOREST

Heather Lang
Illustrated by Jana Christy

A Discussion Guide
with Common Core
State Standard (CCSS)
Correlations



ABOUT THE BOOK

Professor Margaret (Meg) Lowman has loved studying nature since she was a child. She “wrapped herself in nature, like a soft blanket” and carried this love of the natural world into adulthood. She turned her passion for leaves and plants into a career in science, and she began studying the tropical rainforests of Australia in graduate school. Meg’s curiosity about rainforests led her to invent new ways to explore them—from using a harness to hoist herself high up into the trees to working with a friend to develop the world’s first canopy walkway.

In this beautifully illustrated book filled with rainforest facts, Heather Lang shares the story of Meg’s extraordinary resourcefulness and her groundbreaking contributions to the study and preservation of rainforests, accompanied by Jana Christy’s evocative illustrations.

PRAISE FOR *THE LEAF DETECTIVE*

“A nice addition to any rainforest or biography unit . . . an inspiring portrayal (that) focuses on Lowman’s inventiveness and dedication through engaging, poetic text augmented by original quotes. Christy’s striking illustrations use leafy patterns and repetition of vignettes to underscore the White woman’s enthusiasm and determination . . . an exciting tale of exploration and adventure that will capture the attention of budding scientists and environmentalists alike. An intricate and satisfying portrait of a dedicated woman scientist, innovator, and activist.” —*Kirkus Reviews*

“Lang’s well-balanced coverage shares with audiences the vigor and daring that boosted Lowman into the canopy . . . and the global activism that now leads her to propose and develop sustainable commercial uses for protected rainforests. Christy’s digital artwork allows Lowman’s golden-haired figure to shine among the sun-dappled shade of the canopy and hints strongly at the vertiginous walkways and platforms Lowman calls workplace.”

—*Bulletin for the Center of Children’s Books*

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DISCUSSION QUESTIONS AND RESEARCH

What was Meg like as a little girl? What were some of the things she liked to do?

([CCSS.ELA-LITERACY.RI.3.1](#))

What obstacles did Meg face when she was in college?

([CCSS.ELA-LITERACY.RI.3.1](#))

When Meg began studying the rainforests in Australia, she knew there was much more to explore high in the treetops. What method did she use to study the tree canopy?

([CCSS.ELA-LITERACY.RI.3.1](#))

Initially, Meg had difficulty using the harness and climbing the rope: “Swinging and twisting, she dangled like a worm on a hook.” But these difficulties didn’t stop her. What were some of the animals she was excited to see the higher she went in the tree canopy?

([CCSS.ELA-LITERACY.RI.3.1](#))

Since she was a child, Meg was fascinated with leaves. How did she study the leaves in the tree canopy? Why do you think she numbered leaves on different branches at different heights? What did she find out one night while wearing her headlamp?

([CCSS.ELA-LITERACY.RI.3.1](#))

In 1988, Meg and her friend Peter O’Reilly designed a canopy walkway. How did that change how Meg and others were able to study the rainforest?

([CCSS.ELA-LITERACY.RI.3.1](#))

Meg continued to experiment “with other ways to explore forest canopies.” How did she use a hot-air balloon and a raft to explore the treetops in Cameroon, Africa?

(CCSS.ELA-LITERACY.RI.3.1)

Meg was worried that her “research for the trees, for the animals, for people” would be for nothing if the rainforests continued to be destroyed. What were some of the things Meg did to help preserve rainforests in Cameroon, Western Samoa, and Ethiopia?

(CCSS.ELA-LITERACY.RI.3.1)

In the Author’s Note at the back of the book, the author Heather Lang writes, “Meg . . . discovered new species, identified different plant and insect interactions, measured herbivory in forests around the world, and made countless scientific discoveries.” But despite these accomplishments, what was also remarkable about Meg as a scientist? Talk about her experience with gender inequality as a female in the field of science.

(CCSS.ELA-LITERACY.RI.3.1)

CURRICULUM CONNECTIONS

“We are *part* of our ecosystem, not outside it.” After reading the book, what do you think Meg means by that?

(CCSS.ELA-LITERACY.RI.3.6 and SL.3.1D)

“Before 1979, most scientists studied rainforest treetops through binoculars.” How did Meg Lowman change how the rainforest was studied? What were some of the ingenious solutions she designed to make rainforest study more accessible?

(CCSS.ELA-LITERACY.RI.3.1 and SL.3.4)

“Meg discovered that 15 to 25 percent of tropical rainforest leaves are eaten every year, mostly by insects.” How do insects eat leaves?

(CCSS.ELA-LITERACY.RI.3.1 and SL.3.4)

Explain why the author says a tree is a “salad bar” for insects and a “buffet” for birds and mammals.

(CCSS.ELA-LITERACY.RI.3.1 and SL.3.4)

Why is a tree like a “sponge?”

(CCSS.ELA-LITERACY.RI.3.1 and SL.3.4)

How do rainforest trees clean the air we breathe?

(CCSS.ELA-LITERACY.RI.3.1 and SL.3.4)

Take a look through the book and see if you can find the definitions for these words: canopy, conserve, deforestation, herbivore, and transpiration.

(CCSS.ELA-LITERACY.RI.3.4)

“A tree is not just a tree” to Meg, “it is a shelter for animals and people, a recycler and provider of water, a creator of food and oxygen, an inventor of medicine, a soldier against climate change.” Think about what trees mean to you. Write the words you would use to define a tree.

(CCSS.ELA-LITERACY.RI.3.6 and W.3.2)

How and why are rainforests being destroyed?

(CCSS.ELA-LITERACY.RI.3.1)

It is believed that “the canopy is home to approximately half the plant and animal species on land.” What are some things we all can do to help conserve the rainforests? Write a list of your ideas.

(CCSS.ELA-LITERACY.SL.3.1D and W.3.7)

At the end of the book, Meg says, “If only I could have achieved as much as the tree! . . . But I have not. I have whittled away at relatively small goals in comparison to the grander accomplishments of a tree.” After reading this book, do you think Meg is underestimating her impact on the rainforest conservation? What words would you use to describe Meg?

(CCSS.ELA-LITERACY.RI.3.1 and SL.3.1D)

Look through this book and pick one rainforest tree, plant, or creature that interests you—like the three-toed sloth or the scarlet macaw or the cacao tree. Find out more about your selection and share some fun facts. For example, did you know that kapok trees can grow up to 13 feet a year?

(CCSS.ELA-LITERACY.RI.3.10 and SL.3.1A)

In the Author’s Note, the author reveals that the strangler fig is Meg’s favorite tree. What is unique about the strangler fig? Why is it Meg’s favorite?

(CCSS.ELA-LITERACY.RI.3.1)

At the back of the book, there is a spread called Rainforest Magic that illustrates the different levels of the rainforest. What are some of the different plants and creatures that live in each layer?

(CCSS.ELA-LITERACY.RI.3.1)

Cameroon, Ethiopia, Madagascar, Peru, Western Samoa, Queensland, Australia—all of these places are mentioned in this book. Can you find these locations on a map?

(CCSS.ELA-LITERACY.RI.3.10)

EXTRA CREDIT

Jane Goodall calls Meg Lowman “a true hero, a courageous explorer.” And Edward O. Wilson says that Meg is a “pioneer scientist (who) has created an extraordinarily important branch of environmental and conservation research.” Who are Jane Goodall and Edward O. Wilson? What do they have in common with Meg?

(CCSS.ELA-LITERACY.RI.3.1 and RI.3.10)

“Moisture from the Amazon affects rainfall as far away as Texas.” Where is the Amazon? How far is it from Texas?

(CCSS.ELA-LITERACY.RI.3.1 and RI.3.10)

“Tropical rainforests receive at least sixty inches of rain per year.” That’s a lot of rain. Rainforests are also very humid which is an ideal environment for many different plants. What’s the climate like where you live? How much rain does your area receive annually?

(CCSS.ELA-LITERACY.RI.3.1 and RI.3.10)

One of the trees Meg explored in the rainforest is called the stinging tree: “It defended itself—its pincushion leaves tore at her skin, and chemical hairs injected poisons with a fiery sting.” Can you think of any other plants humans need to be careful around?

(CCSS.ELA-LITERACY.RI.3.1 and RI.3.10)

Chocolate, cinnamon, and pineapple are just a few of the foods we enjoy from the rainforest. The rainforest is also home to medicinal plants—in fact, chemicals from a plant in Madagascar provide a cure for leukemia. Find out more about how rainforest food crops and medicinal plants are a sustainable way to help preserve rainforests.

(CCSS.ELA-LITERACY.RI.3.1 and RI.3.10)

In the book, the author shares that “it can take sixty million to one hundred million years for a rainforest to form. Many of our rainforests existed when dinosaurs roamed the earth.” It can be hard to imagine that many years. For help visualizing large numbers, read *If: A Mind-Bending New Way of Looking at Big Ideas and Numbers* by David J. Smith.

(CCSS.ELA-LITERACY.RI.3.10)

For more information about Meg Lowman, visit canopymeg.com/.

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