

Discovering the Natural Sciences: *Forest Has a Song*

Grow with STEM • by | Anastasia Suen & Shirley Duke

Grades
3–5

The lyrical poetry of *Forest Has a Song* brings a temperate deciduous forest to vibrant life while offering readers many ways to delve into STEM. Explore natural science by identifying seasonal adaptations of forest animals and creating a class book of poems to express the information. Use technology to investigate the making of the book and dig deeper into poetry writing. Examine the engineering of spiderwebs, and make a class tally of the trees or animal life around your school.

The Science: Forest Has a Song

An invitation in poetry takes the reader into a forest throughout the seasons and reveals its many aspects through the eyes of a girl and her dog. As the pair wanders about, readers see the forest in detail and as a whole. The final poem has the girl and her dog leaving the forest as it readies for winter yet again, and the forest asks them to remember it is there.

The poems depict a temperate deciduous forest. A temperate biome is one that receives large amounts of rain and has distinctive seasons, characterized by mild summers and below-freezing winters. Seasons are caused by the tilt of the earth on its axis. As the earth tilts toward the sun, the Northern Hemisphere is closer to the rays, warming up the atmosphere to bring spring and summer. As the tilt begins to lean away from the sun, the distance increases and fall and winter arrive.

The changing seasons affect the differing layers of foliage that a deciduous forest exhibits. Those layers begin with the mosses and lichens that make up the ground layer and a herbaceous zone filled with plants such as ferns. Shrubs form the middle layer, populating the forest with plants like mountain laurel. Small trees and saplings rise above the shrubs. Large trees—

Forest Has a Song, by Amy Ludwig VanDerwater. Clarion Books, 2013.

Can a book of poems be nonfiction too? Yes, it can! This poetry collection has a narrative that takes readers into a forest where they learn new information. It explains the **facts** with a **fiction** story, making it a **nonfiction narrative** collection of **faction** poems.



The Six Genres of Nonfiction

1. **Informational text:** Shares information.
2. **Procedural text:** Explains how to do something step-by-step.
3. **Biography:** Tells the story of a person's life.
4. **Nonfiction narrative:** Tells a story of real-life events.
5. **Reference:** Explains or describes information concisely.
6. **Persuasive text:** Seeks to persuade the reader to do what the writer wants.

typically maple, elm, and oak in a deciduous forest—tower over the lower layers. Varying amounts of light penetrate the upper canopy, causing the different layers of plants to develop.

From spring to fall, deciduous trees (meaning trees that lose their leaves) display green leaves, which carry on photosynthesis, the food-making process in plants. This food is stored in the roots, buds, and branches to use later. Their broad leaves would lose too much water in winter and freeze, so it's more efficient for them to shed their leaves in fall and grow new ones in spring. This adaptation allows the tree to be dormant in winter to protect itself from the cold. Leaves turn colors in fall as cooler weather triggers the green chlorophyll to break down, leaving the vibrant fall colors previously hidden by the green. Warming temperatures in spring send the message to grow new leaves. And then the cycle starts over.

The forest has a wide range of wildlife. Abundant food in summer allows animals to fatten up to help them live or hibernate through a long cold winter or provide energy to leave the forest, or migrate, to warmer places. Black bears, deer, mice, birds, salamanders, fox, raccoons, possums, rabbits, and turkeys populate these forests.

Spark Their Interest with a Booktalk

Have you ever read a poem that took you into a new place, like a forest? In *Forest Has a Song*, the poems show different parts of a forest and help you see the great diversity of plant and wildlife to be found in each one. These poems take place in a temperate deciduous forest, which is one where the leaves fall off in autumn and grow back each spring. Let's take a look at some of the poems to discover exactly what's in a deciduous forest.

Reading

Browse through the book and show the art. Ask the students to look at a picture and predict what the poem being illustrated might be about. Read selected poems and discuss them.

Extension Activities

Forests and nature in general present plenty of opportunity and subject matter for STEM activities of all kinds.

Science

- Have students investigate one of the forest animals and find out what adaptations it needs to live in a temperate forest biome. Does it hibernate, migrate, or remain in the forest over winter? After researching hibernation, students can discuss what it means. Are there different kinds of hibernation?
- Challenge students to look up information about the temperate biome to learn more about it. Why is it called "temperate"?
- Have students investigate a forest food chain or web. How do all the animals and plants work together to survive and make a flourishing forest? What is the ecology of the forest? How can people help or hurt it?

- Encourage students to write information they've gathered about an animal and its adaptations, the temperate biome, or the forest food chain or web in a free verse poem and illustrate it. Place all poems in a class binder, and have students take turns reading.
- Invite students to write haikus on their topics and share them on the haiku page at our STEM Friday blog during National Poetry Month. Use the haiku tutorials to get students started (<http://stemfriday.wordpress.com/haiku/>).
- Have students write a persuasive essay about why we need to protect our forests to convince people to help the forests remain healthy. Use these sites for reference: www.ecokids.ca/pub/eco_info/topics/forests/what_we_can_do.cfm; www.nature.org/ourinitiatives/habitats/forests/howwework/index.htm; and <http://rainforestheroes.com/help-save-rainforests/7-steps-kids-can-take/>

Technology

- Have students create their own poetry booklets or illustrated pages. You can visit several websites, including that of author Amy Ludwig VanDerwater at www.amylv.com, to learn about how the poems and the art were conceived. Listen to the author as she reads from her book in this book trailer on YouTube at http://youtu.be/NRIqI_FOQtw.
- Find out more about the owl poem, "First Flight." See the author's owl sketch, and hear an audio clip of the poem (www.poemfarm.amylv.com/2013/02/first-flight-from-my-new-book.html). Use the poetry tutorial on this page to guide your students when they are ready to write their own poetry.
- Download the poetry kit at www.scribd.com/doc/128649625/Poetry-Kit-2013, and take your class on a nature walk. What will they see and draw that they can use in a poem? Use the how-to-draw books in your 743s as reference materials. The following website offers a good introduction to drawing: Draw 101—Beginner Drawing Lessons (<http://drawsketch.about.com/od/learntodraw/>).

Engineering

- Spiders are some of nature's best engineers. Take a closer look at spiderwebs. How do they do that? Some spiders build webs, but

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not all webs are the same. Share these spider facts pages with students so they can see the different types of webs up close:

Spiderwebs: www.biokids.umich.edu/guides/tracks_and_sign/build/webs/

Spider facts: www.kidzone.ws/lw/spiders/facts.htm

• **Make a Spiderweb Craft**

If you have time for a craft, your students can make a simple spiderweb with white yarn.

Spiderweb: Make a spiderweb with water, glue, white yarn, and a balloon: www.pbs.org/parents/crafts-for-kids/dangling-spider-webs/. It needs to dry overnight.

Sun-catcher web: Or try this sun-catcher web made with white yarn and holes pushed in the edges of a paper plate: www.sheknows.com/parenting/articles/973931/simple-halloween-spider-web-craft.

Mathematics

- Conduct a nature tally. Ask students to count and compare what they see. You can have them count the trees in the school yard by species. (Use the tree books in your library as a reference.) Or compare the types of leaves that the trees and bushes in the yard have using this online “Description of Leaves” resource as a reference: www.cs.rochester.edu/~nelson/wildflowers/glossaries/leaves/.
- If you prefer to focus on wildlife (like the poem “Forest News”), the students can look up animal footprints and make a list of the different types. Or you can work as a group in the library and tally the number of pets at your school and/or at home. After each tally is completed, make a bar graph or a pie chart to share the findings. You can use a printed handout or make one online. Graph resources: www.scholastic.com/teachers/article/graph-it and <http://nces.ed.gov/nceskids/createagraph/>.
- You can also have students search for Fibonacci patterns in the spirals (and swirls) they see in the school yard. Begin with The Fibonacci Sequence video at <http://youtu.be/KpBfbzxS114>. (After 2:55, the eye image and text repeat until 4:12.)

Dig Deeper

Here are some ways your students can dig a little deeper.

- Let students or groups of students present their poems in a creative way of their own choosing.
- Each student will select a poem and research to learn more about his or her poem’s science information.
- Read another book about how seeds spread and then read the poem “Puff.” Students will compare and contrast the nonfiction book with the poem in a written essay.
- Download ideas for Citizen Science Activities at www.librarysparks.com.
- Take a closer look at chlorophyll with Test It Out! at www.librarysparks.com.



For Further Reading

Books

Growing Patterns, by Sarah C. Campbell. Boyds Mills Press, 2010.

Planting the Wild Garden, by Kathryn O. Galbraith. Peachtree, 2011.

Poetry Friday Anthology for Science, by Sylvia M. Vardell and Janet Wong. Pomelo, 2014.

Swirl by Swirl: Spirals in Nature, by Joyce Sidman. HMH Books for Young Readers, 2011.



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