

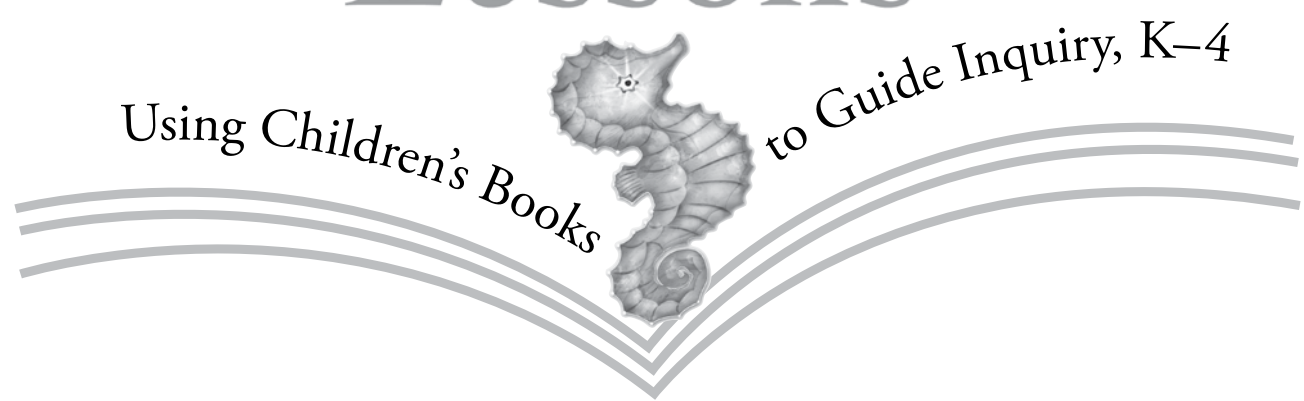
# More Picture-Perfect SCIENCE Lessons

By Karen Ansberry and Emily Morgan

Using Children's Books  
to Guide Inquiry, K-4

**NSTA**press  
National Science Teachers Association

More  
Picture-Perfect  
**SCIENCE**  
Lessons



By Karen Ansberry  
Emily Morgan

**NSTA**press  
National Science Teachers Association

Arlington, Virginia



National Science Teachers Association

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# Be a Friend to Trees

## Description

Learners explore the variety of products made from trees, the importance of trees as sources of food, shelter, and oxygen for people and animals, and ways to conserve trees.

Suggested Grade Levels: K–2

## Lesson Objectives *Connecting to the Framework*

### Science and Engineering Practices

- Obtaining, evaluating, and communicating information

### Disciplinary Core Ideas

LS1.C: Organization for Matter and Energy Flow in Organisms

ESS3.A: Natural Resources

ESS3.C: Human Impacts on Earth Systems

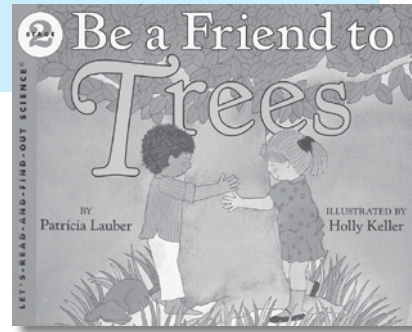
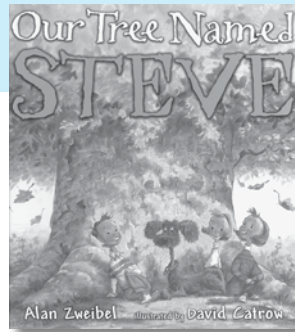
LS1.A: Structure and Function

LS2.A: Interdependent Relationships in Ecosystems

### Crosscutting Concepts

- Systems and System Models

## Featured Picture Books



|                    |   |                    |  |
|--------------------|---|--------------------|--|
| <b>Title</b>       | <i>Our Tree Named Steve</i>   | <b>Title</b>       | <i>Be a Friend to Trees</i>  |
| <b>Author</b>      | Alan Zweibel  | <b>Author</b>      | Patricia Lauber  |
| <b>Illustrator</b> | David Catrow  | <b>Illustrator</b> | Holly Keller   |
| <b>Publisher</b>   | G. P. Putnam's Sons   | <b>Publisher</b>   | HarperTrophy   |
| <b>Year</b>        | 2005  | <b>Year</b>        | 1994   |
| <b>Genre</b>       | Story   | <b>Genre</b>       | Non-narrative Information  |
| <b>Summary</b>     | In a letter to his children that is both humorous and poignant, a father recounts memories of the role that Steve, the tree in their front yard, has played in their lives. | <b>Summary</b>     | Discusses the importance of trees as sources of food, oxygen, and other essential things, and gives helpful tips for conserving this important natural resource. |

## Time Needed

This lesson will take several class periods. Suggested scheduling is as follows:

Day 1: **Engage** with *Our Tree Named Steve* read aloud.

Day 2: **Explore/Explain** with Sorting Chart and *Be a Friend to Trees* read aloud.

Day 3: **Elaborate** with My Favorite Tree.

Day 4: **Evaluate** with Be a Friend to Trees Poster.

## Materials Per Group of 3–5 Students

Sorting chart made from chart paper with a large Venn diagram drawn on it

Boxes or bins, 1 per group, filled with several of the following tree parts or products (actual objects or pictures of the objects) described in the book *Be a Friend to Trees*:

### From Trees:

Wooden block

Writing or construction paper

Newspaper

Small cardboard box or paper milk carton

Apple, orange, pear, cherry, or peach

Walnut, almond, pecan, or hazelnut in the shell (Check to see if you have students with tree nut allergies in your class, and use only pictures if you do.)

Small tree branch with leaves

Pine needles

Piece of tree bark

Paper towel

Paper grocery bag

Sealed baggie or balloon blown up with air and marked “Oxygen” (This will represent oxygen although it also contains other gases.)

Also include some of the following objects (actual objects or pictures):

### Not From Trees:

Plastic objects (such as small toys, markers, balls, and containers)

Metal objects (such as keys, foil, and spoons)

Glass marble

Rock

Small pumpkin, squash, carrot, or potato

Cotton, polyester, or nylon cloth

Reusable net or canvas grocery bag

Sealed baggie blown up with air and marked “Carbon Dioxide” (This will represent carbon dioxide although it contains other gases.)

**Both:**

- Pencil with eraser
- Plastic bottle of maple syrup
- Chocolate in a foil wrapper

**Materials Per Student for My Favorite Tree Activity**

- Crayon with the paper removed
- Pencil
- Clipboard (or notebook to use as a writing surface)

**Student Pages**

- My Favorite Tree journal (4 single-sided pages stapled together)
- Be a Friend to Trees Poster rubric

**Background for Teachers**

Trees are one of Earth's most important natural resources. We depend on trees for food and wood products, water and soil conservation, shade, beauty, and, most important, the oxygen they add to the air. It is essential for students to understand and appreciate the importance of trees to humans and all life on Earth, and to realize that their actions can have an impact on trees. In this lesson, students explore our dependence on trees by observing and sorting various products that come from them. After reading about how humans and other animals depend on trees, they also learn a variety of ways that they can be a friend to trees. Nurturing a sense of wonder about trees will encourage students to do more to protect and conserve this vital resource.

**Engage***Our Tree Named Steve*  
**Read Aloud** **Stop and Jot, Turn and Talk**

Before reading the book *Our Tree Named Steve*, engage students by saying, "From where you are sitting, look around and think of everything in this room that might be different if there was no such thing as a tree." Allow some quiet thinking time, and then have students turn and talk to a neighbor. You may want to have students stop and jot their ideas before sharing with a neighbor.

 **Inferring**

Explain that you have a book to share about a very special tree. Show the cover of *Our Tree Named Steve*, and then introduce the author and illustrator. Ask

- ? What are you thinking this story is about? Why do you think so?

 **Synthesizing**

Read the book aloud, stopping after page 5 ("... Mom and I got the hint and asked the builder to please save Steve.") Then ask

- ? Now what are you thinking this story is about?



You may want to stop at key points in the story to allow students to discuss their thinking about the story's meaning.

### Questioning

After reading, draw a large tree trunk on the board or chart paper and label it "Steve." Ask

? How did the tree get its name? (The youngest daughter couldn't pronounce "tree" and called it "Steve.")

You can write the students' responses to the following two questions as "branches" of the tree. Ask

? How did the family use this special tree when it was alive? (Answers can include: as a swing holder, target, third base, hiding place, jump-rope turner, clothesline, hammock-holder, and sewer-water remover.)

? How did the family use the tree after it blew

over in the storm? (They used the wood to build a tree house.)

Then ask

? How did the tree protect the family "to the very end"? (It didn't fall on their house, the swings, the dog's house, or the garden.)

### Synthesizing

? Now what are you thinking the story is about?

? How does the story make you feel?

? Have you ever had a special tree? What made it special?

? What are some ways that trees help us?

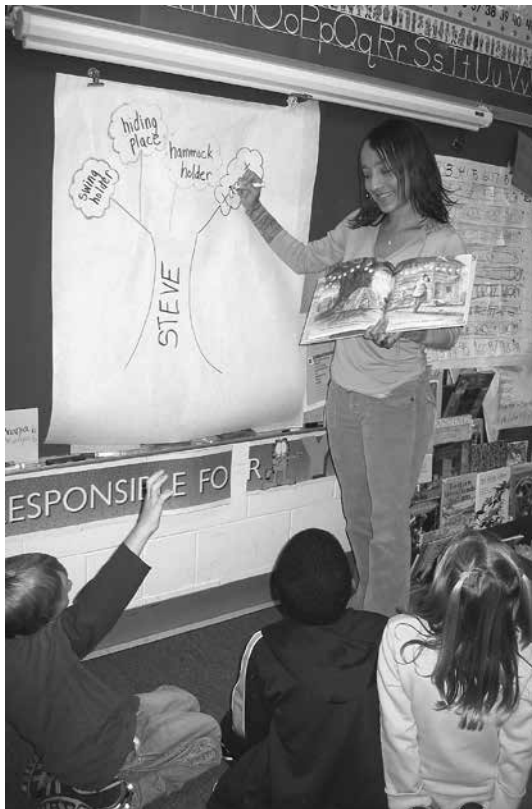
## Explore/Explain

### Sorting Chart and *Be a Friend to Trees* Read Aloud

In advance, create boxes or bins filled with an assortment of items that came from trees, items that did not come from trees, and items that contain both wood products and other materials (see materials list). Explain that students will be learning about some of the ways that trees help us by doing a sorting activity and then reading a nonfiction book. Divide students into groups, and distribute to each group a bin and a Sorting Chart made from chart paper with a Venn diagram (two large intersecting circles) drawn on it. Have students label one circle "From Trees," the other circle "Not From Trees," and the intersection of the circles "Both."

Then have groups observe each object carefully, discuss whether or not they think it came from trees and why, and place it in the appropriate circle on the chart. If they are not sure about how an object should be grouped, they can leave it in the bin for now.

Invite students to justify how they sorted the objects. Ask



*A Tree Named Steve graphic organizer*



Sorting objects

- ? What are some of the objects you think came from trees? Why do you think so?
- ? What are some of the objects you think did not come from trees? Why do you think so?
- ? Were there any objects you were unsure about? Why?

### **Inferring**

Next, show students the cover of the book, *Be a Friend to Trees*. Ask

- ? What do you think this book might be about? Why do you think so?

### **Determining Importance**

Tell students that *Be a Friend to Trees* is a nonfiction book that might help them learn which of the objects came from trees. Introduce the author and illustrator of the book, and then explain that, as you read, you want them to listen for any of the items they placed in the “From Trees” circle on

their sorting charts. Ask them to signal (raise hand, touch nose, or in some other way) when they hear about one of the objects.

### **Questioning**

As you read aloud, stop periodically to question students to check for understanding and build interest. Some suggested questions are

- ? (p. 10) Look at the diagram. What is the first thing that happens in order to make paper? (Wood chips are cooked with chemicals.)
- ? (p. 10) What are the wood chips called after they become soggy? (pulp)
- ? (p. 10) What must be done to the pulp after the water is drained off? (It is dried, flattened, and then rolled into paper.)
- ? (p. 12) What are the only living things that can make their own food? (green plants)
- ? (pp. 14–20) What are some of the ways that animals use trees? Turn to a neighbor, and share

an example from the book. (Possible answers include: Many animals eat leaves, bark, buds, and twigs; squirrels and chipmunks gather nuts to eat; bees collect pollen and nectar; birds roost and nest in trees; and deer hide beneath trees.)

- ? (p. 21) How do trees help the soil? (They keep it from washing away.)
- ? (p. 22) What would happen to people and animals if there were no trees or green plants? (There would be no oxygen in the air, and we couldn't breathe.)
- ? (p. 23) Where do trees make food? (in their leaves)
- ? (p. 24) What three things do leaves need to make food? (water, carbon dioxide, and sunlight)
- ? (pp. 30–32) What are some things you can do to be a friend to trees? Turn to a neighbor, and share an example from the book. (Answers might include: Use less paper; re-use paper bags; write on both sides of paper; recycle newspaper; and plant a tree.)

After reading, give students the opportunity to return to their Sorting Charts and move any of the objects to a different spot on the chart if necessary. Then discuss what kinds of things come from trees (such as oxygen, fruits, nuts, and wood and paper products) and what kinds of things don't (such as carbon dioxide, vegetables, plastics, metals, cloth, glass, and rocks).

## elaborate

### My Favorite Tree

This activity can be done on school grounds, during a field trip to a park or other wooded area, or as a take-home assignment. Take students outside to look closely at a tree. They will each need a copy of the My Favorite Tree journal, a clipboard, a pencil, and a crayon with the paper removed. First, model how to sketch a tree's shape and make careful observations of its leaves and bark.

Then, show students how to do a *leaf rubbing*:

- 1 Find a fallen leaf that is still soft, and place it on your clipboard with the rough or vein side up.
- 2 Place the journal page over the leaf.
- 3 Gently rub the long side of the crayon over the leaf.

Next, demonstrate how to do a *bark rubbing*:

- 1 Pick the part of the bark that you want to make a rubbing of.
- 2 Place the journal page over that part.
- 3 Gently rub the long side of the crayon over the bark.

Next, model some of your own wonderings about the tree. (For example: How old is this tree? I wonder who planted it. I wonder if an animal lives in this hollow part. What kind of tree is it?)



Observing a leaf

Finally, share your thoughts and feelings about the tree by explaining why you chose the tree for your journal. (For example: This is my favorite tree because the bark peels up in places and looks like paper. I like how I can fit my arms all the way around the trunk. I have never seen a tree like it before. I feel peaceful when I sit with my back leaning against the trunk.)

If this activity is to be done at home, students can take their journals home and complete them with an adult helper. If this activity is to be done at school or on a field trip, allow students to look at several trees before deciding on a favorite to include in their journals. When you return to the



*Making a leaf rubbing*

classroom, have students share their journals with each other.

## Evaluate

### Be a Friend to Trees Poster

Ask

- ? What does it mean to “be a friend to trees?” (to do things that will help protect or conserve trees)
- ? Why is it important to “be a friend to trees?” (Answers could include: Trees help animals, humans, and the environment in many ways.)



*Making a bark rubbing*

Pass out the Be a Friend to Trees Poster grading rubric. Have students create a 3-2-1 poster summarizing what they have learned about trees and their conservation. Posters should include

- thorough descriptions of three ways trees are helpful to humans, animals, and the environment,
- two interesting facts about trees, and
- one labeled drawing showing a child being a friend to trees.

For fun and extra credit, students can include their own additional research on trees, or a poem, song, rap, or cheer about being a friend to trees. You can use the rubric to score completed posters and make comments.

## Inquiry Place

Have students brainstorm testable or researchable questions such as:

- ? How can trees be identified?
- ? How many different kinds of trees are in the schoolyard?
- ? What will happen to a leaf on a tree if it is covered with paper for a length of time?
- ? What is the world's oldest/tallest/thickest tree?
- ? How is paper made?
- ? How can we make recycled paper in the classroom?

Then have students select a question to investigate or research as a class, or have groups of students vote on the question they want to investigate as a team. After they make predictions, have them design an experiment or do research to test their predictions. Students can present their findings at a poster session or gallery walk.

### More Books to Read

Gackenbach, D. 1992. *Mighty tree*. New York: Voyager Books.

Summary: Three seeds grow into three beautiful trees, each of which serves a different function in nature and for people.

Gibbons, G. 1984. *The seasons of Arnold's apple tree*. New York: Voyager Books.

Summary: As the seasons pass, Arnold enjoys a variety of activities as a result of his apple tree. Includes a recipe for apple pie and a description of how an apple cider press works.

Mora, P. 1994. *Pablo's tree*. New York: Simon & Schuster Books for Young Readers.

Summary: Every year, Pablo's grandfather decorates a special tree for his birthday.

Shetterly, S.H. 1999. *Shelterwood*. Gardiner, ME: Tilbury House.

Summary: While staying with her grandfather who is a logger, Sophie learns about different kinds of trees, what they need to thrive and grow, and how the bigger trees provide shelter for the smaller ones. Her grandfather teaches her that, when harvesting trees, it is important to let the tallest ones stay to drop their seeds and start a new generation. Sophie discovers that, when we take care of the woods, it provides for us for generations to come.

Silverstein, S. 1997. *The giving tree*. New York: Scholastic.

Summary: Shel Silverstein's poignant story of a boy and a special tree that gives him many things throughout his life.

Udry, J. 1956. *A tree is nice*. New York: HarperCollins.

Summary: This Caldecott award-winning book speaks simply and elegantly of the many pleasures a tree provides.

Worth, B. 2006. *I can name 50 trees today!: All about trees*. New York: Random House.

Summary: While stopping to admire some of the world's most amazing trees, the Cat in the Hat and friends teach beginning readers how to identify tree species from the shape of their crowns, leaves, lobes, seeds, bark, and fruit. Dr. Seuss-inspired cartoons and verses teach readers about many of the trees common to North America.

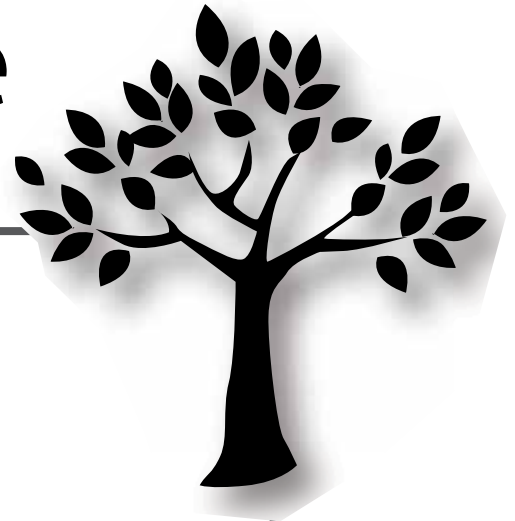
### Websites

The National Arbor Day Foundation  
[www.arborday.org](http://www.arborday.org)

Trees for Life  
[www.treesforlife.org](http://www.treesforlife.org)

# My Favorite Tree

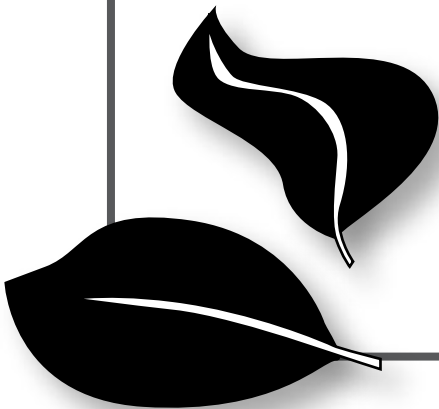
By \_\_\_\_\_



The Shape of My Favorite Tree

# My Favorite Tree cont.

Leaf Rubbing From My Favorite Tree



Observations of the leaf: \_\_\_\_\_

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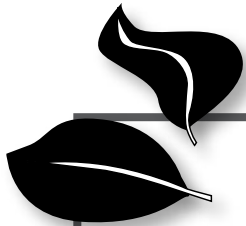
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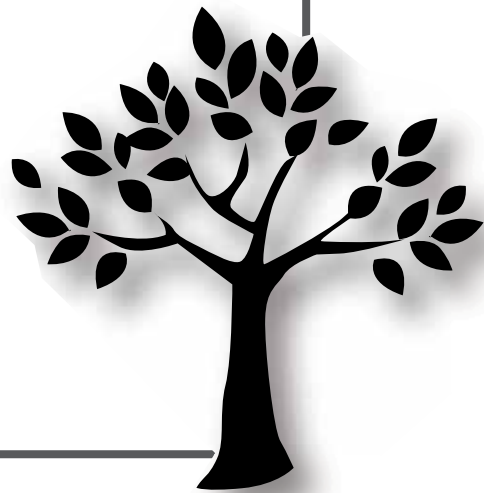
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# *My Favorite Tree* cont.



Bark Rubbing From My Favorite Tree

A large, empty rectangular box with a thin black border, intended for students to draw or write about their bark rubbing activity.

Observations of the bark: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





## *My Favorite Tree cont.*

Wonderings about my favorite tree: \_\_\_\_\_

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Why this is my favorite tree: \_\_\_\_\_

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# Be a Friend to Trees

3-2-1 Poster Rubric

Name \_\_\_\_\_

Your poster includes:

**3** ways trees are helpful to humans, animals, and the environment.

1

2

3

**2** interesting facts you learned about trees.

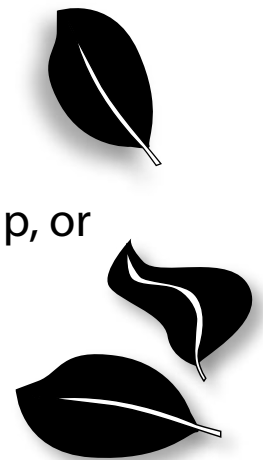
1

2

**1** labeled drawing of yourself "being a friend to trees."

1

For fun and extra credit, you included your own additional research on trees, or a poem, song, rap, or cheer about being a friend to trees.



Total Points \_\_\_\_\_/6

Comments: \_\_\_\_\_



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