

# VANISHING ACTS: TREES UNDER THREAT



## Purpose of this Guide

- To help teachers guide their PreK-2 students through the Vanishing Acts exhibit.

## How to Use This Guide

- In this guide you will find lesson plans, worksheets, and activities specifically designed to help younger students understand and appreciate the Vanishing Acts exhibit.
- Below is a list of the activities for students in PreK-2<sup>nd</sup> grade.
- Next to the title of the activity is a recommendation for when this activity might be most beneficial for students in relation to their visit to the Vanishing Acts exhibit.

## Included In This Guide

- |                                |                    |
|--------------------------------|--------------------|
| • Tree-anatomy Lesson Plan     | Pre-visit          |
| • Ideas for Related Activities | Pre- or Post-visit |
| • Leaf Shapes Handout          | Pre-visit          |
| • Tree Labeling Handout        | Pre-visit          |
| • Large Print Tree Part Labels | Pre-visit          |
| • Tree Part Matching Handout   | Pre-visit          |
| • Word Search                  | Pre- or Post-visit |
| • Trees are Important Handout  | Post-visit         |

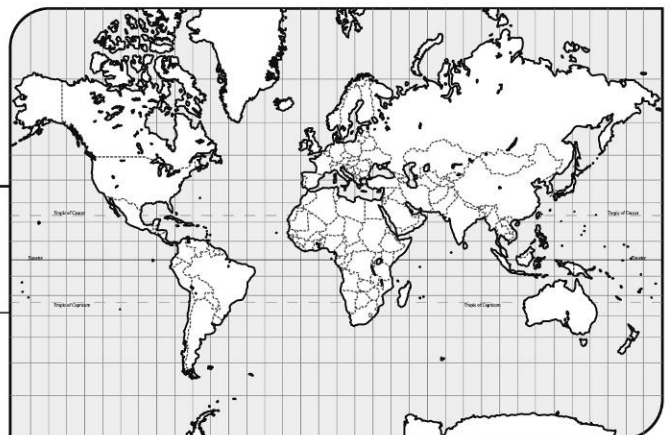
## National Science Content Standards Addressed

- Science as Inquiry: Abilities necessary to do scientific inquiry
- Life Science: Characteristics of organisms

## Time

Two 30 minute class periods

**Teacher's Guide**  
**Grades PreK-2**



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## **Lesson Plan Summary**

Before you visit the Vanishing Acts exhibit, discuss tree anatomy and leaf shapes with your students. In the first part of this lesson, students will learn about different tree parts and their functions. In the second part of this lesson, students will learn about different leaf shapes.

## **Key Messages**

- Trees have many parts and all the parts are very important to the tree.
- Leaves can be sorted and organized in many ways based on their features. Scientists sort trees into categories, sometimes based on their leaves.
- Trees are very important to people for many reasons.

## **Guided Inquiry Questions**

Use these questions to guide inquiry before and during the lesson:

- What is the purpose of each different part of a tree?
- Why are trees important to humans and other animals?
- How are tree leaves sorted and organized?

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## TREE-NATOMY LESSON PLAN

### PART ONE: TREE ANATOMY (:30 MINUTES)

#### Supplies Needed

- Based on a classroom of 20 students: 20 copies of the tree labeling handouts
- crayons/markers
- five pieces of brown yarn cut into 15 inch pieces (roots)
- brown paper bags or construction paper cut into five 5x5 inch squares (trunk pieces)
- five 5x5 inch leaf shapes cut out of green construction paper (leaves)
- brown paper bags or construction paper cut into five 10x2 inch shapes (branches)
- one copy of the “large print tree part labels:” leaf, root, trunk, branch, crown (print and cut at dotted lines)

#### Step 1: Discuss the different parts of a tree.

Students should label basic tree parts on their Tree Labeling handouts... roots, trunk, branches, leaves and crown. Explain the function of the different parts of the tree.

	Explanation of function for grades PreK-K	Explanation of function for grades 1-2
<b>Roots</b>	<ul style="list-style-type: none"><li>• Gathers water and nutrients from the soil</li><li>• Holds the tree in place, gives it support</li></ul>	<ul style="list-style-type: none"><li>• Gathers water and nutrients from the soil</li><li>• Holds the tree in place, gives it support</li></ul>
<b>Trunk</b>	<ul style="list-style-type: none"><li>• Holds the tree strong and tall</li><li>• Moves food and water around in the tree</li></ul>	<ul style="list-style-type: none"><li>• Holds the tree strong and tall</li><li>• Moves food and water around the tree – the xylem moves the water and the phloem moves the food</li></ul>
<b>Branches</b>	<ul style="list-style-type: none"><li>• Holds the leaves out so leaves can gather sunlight</li></ul>	<ul style="list-style-type: none"><li>• Holds the leaves out so the leaves can gather sunlight</li></ul>

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	Explanation of function for grades PreK-K	Explanation of function for grades 1-2
<b>Leaves</b>	<ul style="list-style-type: none"> <li>Gather sunlight and air to make the food</li> </ul>	<ul style="list-style-type: none"> <li>Gather sunlight and air (carbon dioxide) to make the food using photosynthesis.</li> <li>The leaves need the nutrients from the soil and the water gathered by the roots (moved up the tree by the trunk) combined with the sunlight they gather to perform photosynthesis.</li> </ul>
<b>Crown</b>	<ul style="list-style-type: none"> <li>Branches and leaves together make up the top of the tree</li> </ul>	<ul style="list-style-type: none"> <li>Branches and leaves together make up the top of the tree</li> </ul>

## Step 2: Tree Parts Activity

- Provide each student with one of the “tree parts” listed above (cut brown paper bags, yarn, leaf shapes.) The students are going to build their own tree. Ask the students what part should come first.
- Based on the students’ decision (usually the trunk or the roots) begin building a tree on a bulletin board or a chalk/white board. Have the students bring up their tree parts one at a time to build the tree. Based on where you are building your tree, you will need something to attach the tree parts (you can use a stapler, magnets, tape, etc.)
- Have students also attach the “large print tree part labels.” (For 1<sup>st</sup> and 2<sup>nd</sup> grade, consider having the students write on their tree parts the appropriate name or function: “trunk” or “holds the tree strong and tall” on the brown squares, “leaf” or “makes the food” on the leaf shape, etc. For roots, you will need to attach a small piece of paper.)
- When you visit the Vanishing Acts exhibit, have students locate different tree parts. Some of the trees are very unique in their appearance!

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## PART TWO: LEAF SHAPES (:30 MINUTES)

### Supplies Needed

- Based on a classroom of 20 students: 10 sets of leaf shapes.
- If possible, gather leaves from trees in your local area. You will need 10 of each type of leaf you gather. If you want to save the leaves to use multiple times, try drying them for a few days (pressed between books on newspaper) and then laminate them. Laminated leaves are great for leaf rubbings! Try to gather a variety of leaves, including evergreen and deciduous.
- If gathering leaves is not possible, print ten copies of the “leaf shape page” and cut the leaves apart on the dotted lines.
- Have students complete this activity in groups of two.

### Step 1: Preparing to Sort

- Ask students how tree leaves might be sorted and organized.
- Explain to students that scientists who study trees group them according to different features. Trees that have something in common are grouped together. For example, fir trees all have needle shaped leaves that are flat, while pine trees have needle shaped leaves that grow in little bunches. They may look similar from a distance, but when you look close the leaves tell you something important about the tree.
- Explain that evergreen leaves stay on the tree all year long and deciduous leaves fall off the tree every autumn. Have the students hold up an example of an evergreen leaf. Then have the students each hold up a deciduous leaf. Ask a few of the students how they knew the answer to that question (some possible answers are: this looks like the leaves we rake up in the autumn, or we have a tree that looks like this and it keeps its leaves all year).

### Step 2: Leaf Sorting Activity

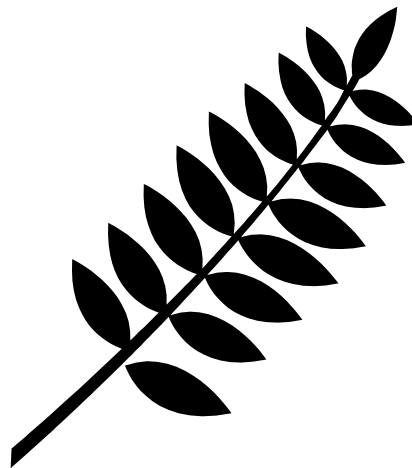
- Have the students look at the 10 leaf shapes they have on their table. Have the students sort them into two piles: evergreen and deciduous. Easy, right? Now let's try some harder sorts.
- Have the students look at the 10 leaf shapes and sort them by **color**. If this activity is done in the fall, you might have some great colors to sort. If this activity is done in the spring, have the students sort by shades of green, not all greens are the same!

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- Have the students look at the 10 leaf shapes as a whole group again. This time, have them sort the leaves by **size**. This can get more complicated if you have compound leaves, such as leaves from a black walnut or an Ohio buckeye. The leaf in this case is actually made up of several leaflets on a stalk, whereas simple leaves have only one leaf. For example, the leaflets on a black locust may look small, but its compound leaf, made up of many leaflets, will usually be larger than the simple leaf from a maple tree. However, not all compound leaves are larger than simple leaves.
- Ask the students to look at their leaves again. With their partner, they should choose another way to sort the leaves. This will require the students to examine other similarities and differences in the tree leaves. As long as they can explain their “sort,” there are no wrong answers to this!
- When you visit the Vanishing Acts exhibit, ask students to look closely at the leaf shapes.



Simple Leaf:  
Maple



Compound Leaf:  
Walnut

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## IDEAS FOR RELATED ACTIVITIES:

- Have each student do a leaf rubbing and add it to your bulletin board tree from part one of this lesson.
- Take students on a leaf walk. Each student should carry a “specimen bag” and gather their own leaves for part two of this lesson. Encourage students to select a variety of different types of leaves.
- Although not a tree, celery can easily show students how water and sap are moved up a tree “trunk.” Place a celery stalk in a clear plastic cup. Place water with red food coloring in the bottom of the cup. The students will be able to see the red “sap” travel through the celery’s “trunk” to the leaves.

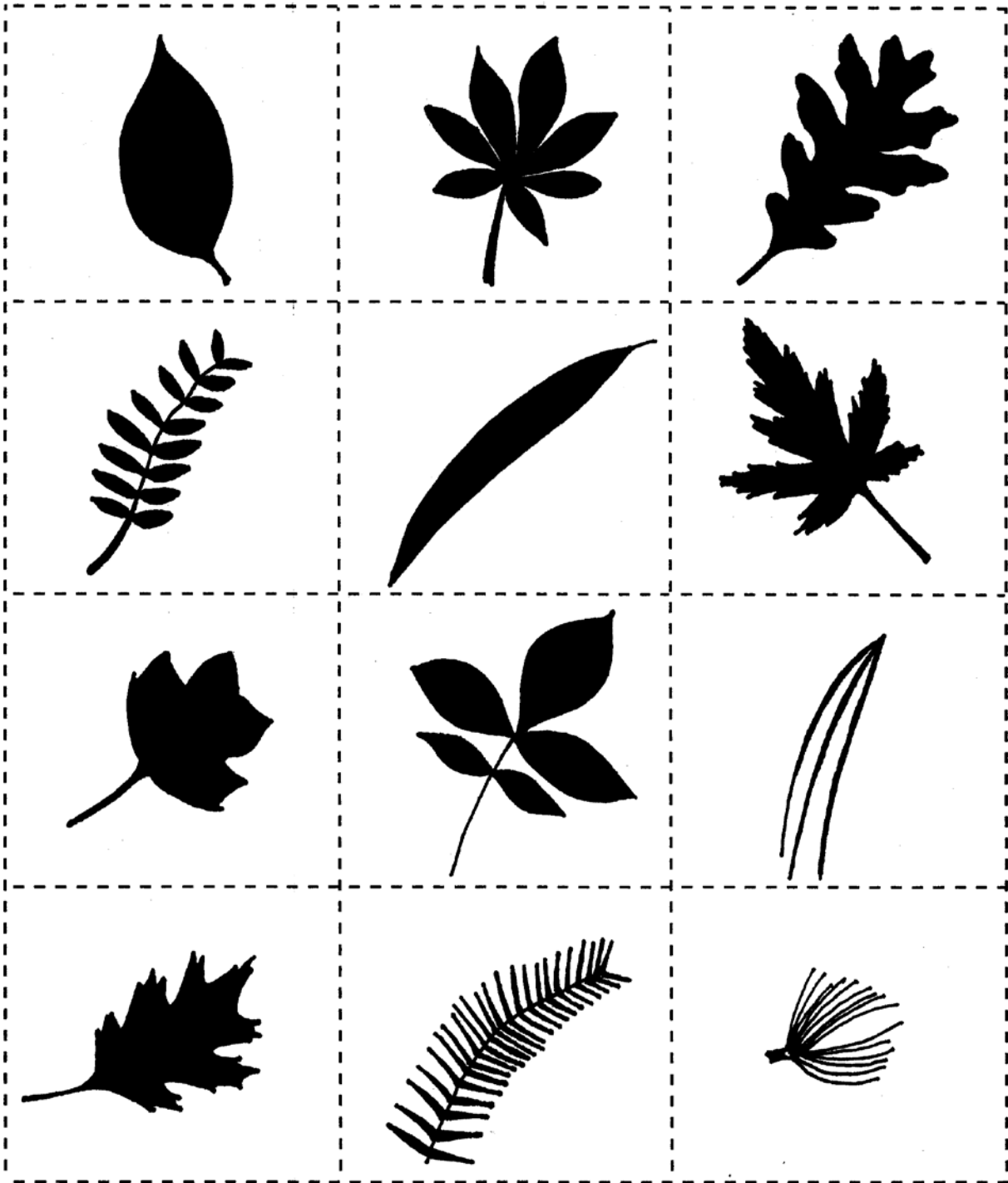


- Have students adopt a tree in the school yard. Once a week, take a field trip to the tree. Make observations about the tree each time you visit – what animals do you see on the tree?; what do the leaves look like?; how has the tree changed since last week? Keep all of these observations in a journal or on a bulletin board so the students can see the changes over the course of the school year.

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## LEAF SHAPES





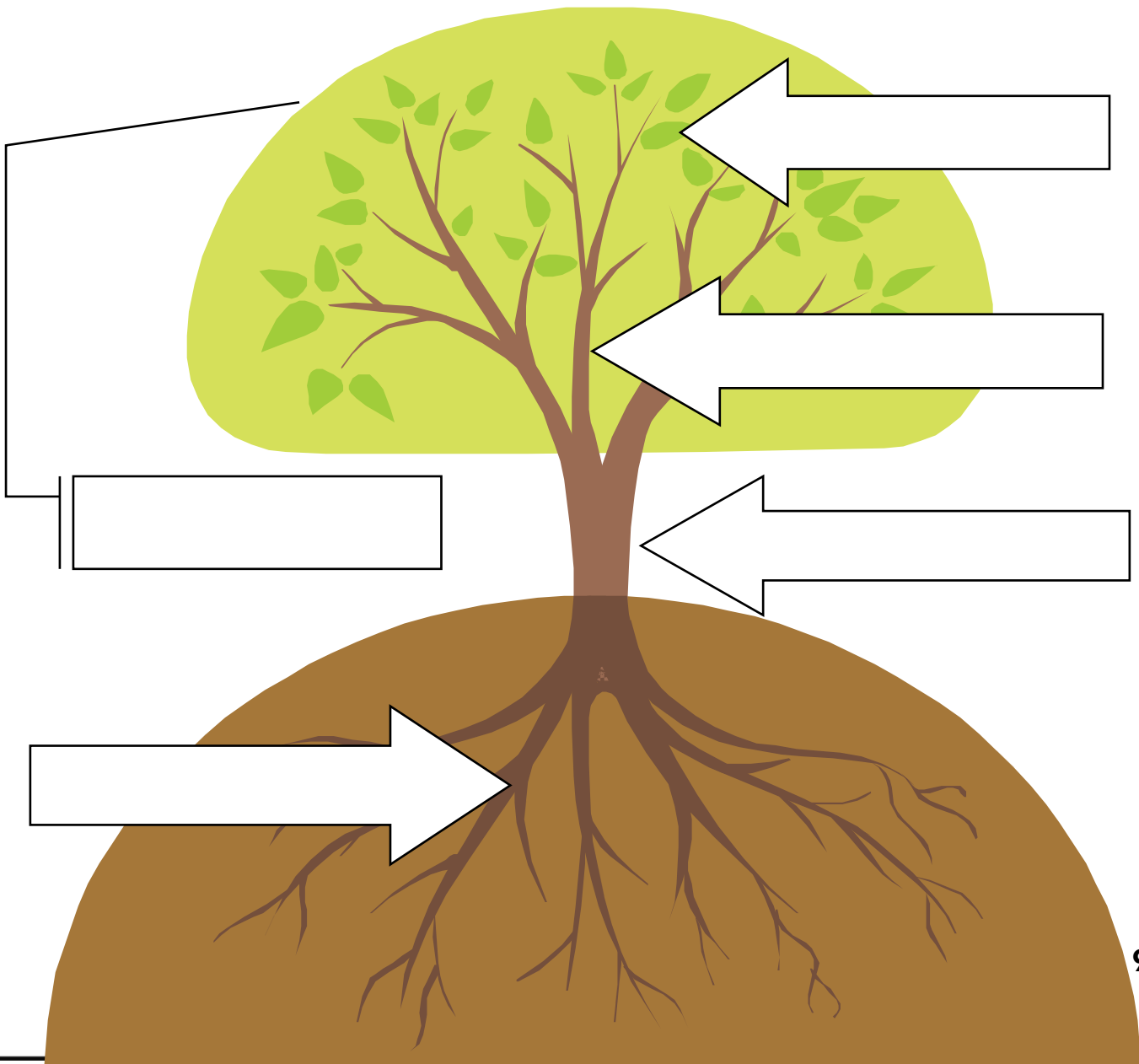
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## TREE LABELING

**Name:** \_\_\_\_\_

**Directions:** Write the correct name for the part of the tree inside the arrow or box pointing to it.  
Label the following parts of the tree: roots, trunk, branch, leaf, crown.



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LARGE PRINT TREE PART LABELS

Leaf

Branch

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Trunk

Root

Crown

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## TREE PART MATCHING ACTIVITY

Name: \_\_\_\_\_

**Directions:** Draw an arrow from the word to the correct tree part picture.

*Note:* All the pictures are from trees in the Vanishing Acts exhibit!



BARK



SEED/CONE



ROOT



BRANCH



TRUNK

LEAF



NEEDLES



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## WORD SEARCH

**Name:** \_\_\_\_\_

**Directions:** Find and circle the vocabulary words in the word search.

Root	T	A	R	U	E	E	G	N
Trunk	R	B	R	A	N	C	H	M
Branch	E	M	L	B	A	P	P	T
Leaf	E	Z	E	C	K	P	L	R
Seed	Q	W	A	E	T	R	A	U
Tree	F	T	F	C	A	R	N	N
Plant	C	B	Y	R	O	O	T	K
	O	K	S	E	E	D	L	A

- **Root** – the underground part of a plant that absorbs water and nutrients from the soil and holds the plant in place
- **Trunk** – the main stem of a tree that supports the crown (tree top)
- **Branch** – a woody stem that grows from the trunk or main stem of a tree
- **Leaf** – the (usually) flat and green outgrowth of a plant stem
- **Seed** – the part of a plant that, under the right conditions, may grow into a new plant

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## TREES ARE IMPORTANT

**Name:** \_\_\_\_\_

**Directions:** Think about what you saw at the Vanishing Acts exhibit. Write why you think trees are important on the branches of the Monkey Puzzle tree below.

