

ROBERSON MUSEUM AND SCIENCE CENTER

Pre-Visit Homegrown: How Nature Inspires Me

Grade Level: 3 through 6

New York State Learning Standards: Arts 1-4; ELA 1-4

Pennsylvania Learning Standards: A&H 9.1, 9.4; RWS&L 1.3, 1.4, 1.6; S&T 3.3

Objectives: This activity will provide students with an introduction to trees by learning about their different parts and purposes. By the end of the activity, students will learn how trees and nature have inspired writers and artists. Students will create a booklet that demonstrates their creativity and inspiration from nature.

Materials:

- Paper, cut into quarter sheets
- Pencils
- Crayons
- Markers and/or colored pencils
- Clipboards (or other hard surface for use when outside)
- Stapler
- Teacher Answer Key (see Fig. 1-Fig. 3 attached)
- Tree Pictures (see attached)
- Wax paper (optional)
- Paper towels or dish towel (optional)
- Iron (option)
- Laminating machine with laminating pouches (optional)
- Diagram of how to cut a pressed leaf out of the wax paper or laminating paper (see Fig. 4 attached)

Procedure:

1. Explain to the students that they will be learning and making their own booklets about trees.
2. Distribute 5 or 6 quarter sheets of paper to each student.
3. Have the students draw a picture of a tree on one of the quarter sheets. Explain to the class that they will be taking a trip outside in order to look at some trees and learn more about its specific parts, so they should be ready to label the tree they have drawn. **Note: It is not necessary to do this activity outdoors. Using a large picture of a tree (on a poster or projected) works well also.**
4. Bring the clipboards or other hard surface and the art supplies outside for upcoming activities.

5. Once outside, gather them around a larger tree that can show all the different parts easily and for everyone to see.
6. Ask the students if they can name any parts of the tree and its purpose. Let them point to what they are talking about while they are explaining. Answers may include: trunk, leaves, branches, roots, and bark. The teacher should go into a little bit of detail about what each part of the tree does and how each part contributes to help a tree grow and live. See Fig. 1 for an answer key. See below for information on each part:
 - a. The trunk gives the tree strength. The trunk is made up of different parts on the inside, which help transport food, grow in diameter, and provide support.
 - b. The bark protects the tree from injuries, including insects and extreme temperatures.
 - c. The roots soak up the water and minerals from the ground.
 - d. The leaves absorb energy from the sun to make food and release oxygen into the air. The teacher can just mention that the leaves participate in a process called photosynthesis, which provides plants with food and the air with oxygen.
 - e. The branches, or the crown (which includes the leaves and branches), filter dust from the air and provide shade.
7. For older students, additional parts may be labeled, like the four layers within the trunk. See Fig. 2 and Fig. 3 for an answer key. See below for information on each part of the inner core of the trunk:
 - a. The heartwood of the tree gives the trunk structural support and stiffness.
 - b. The cambium is the thin layer where the cells divide and produce bark tissue on the outside, and wood tissue on the inside to increase the trunk's diameter.
 - c. The xylem, or sapwood layer, carries water and mineral nutrients from the roots to the leaves.
 - d. The phloem, or the inner bark, carries sugar and other nutrients from the leaves to the rest of the cells in the tree.
8. Students should label the parts on the tree they drew on their quarter sheets.
9. Once they have finished labeling their tree, tell students that this diagram will be included in their booklets as well as some original artwork and writings about trees. Explain to them about how trees and nature have inspired many artists and writers and that forests represent some of the greatest biological (living) diversity on earth. Attached are famous paintings and poems about trees. Show these pictures or other examples to students and encourage a discussion about the different depictions of trees as well as why artists make the aesthetic choices they do.
10. Introduce them to the different art activities. Tell them that they will be able to make bark rubbings from the trees, draw sketches and pictures of what they see, and write a response (poem, short story, etc.) inspired by trees. Encourage them to think about the beauty of the trees, the uniqueness of nature, and how trees provide for us too. Allow them to use one of their quarter sheets for a title page.
 - a. Bark rubbings capture the texture of tree bark. To do a bark rubbing, hold a piece of paper up against the bark of a tree. Then, using the length of a crayon, rub lightly on the surface of the paper so that the different textures on the bark can be seen. The students may use more than one color and can make multiple bark rubbings.

- b. Drawings may include sketches and pictures of what they observe or inspired by what they observe. They may use pencils, crayons, markers, colored pencils, etc. to color in their work.
 - c. Written Responses may include different kinds of poems, short stories, a kind of journal entry, etc. Again, they may describe what they observe or be inspired by what they observe.
11. Once they have completed coloring, drawing, and/or writing, staple the quarter sheets together to form a booklet.

Conclusion: Students may present their booklets to a classmate or the entire class. Encourage the students to think about how all the different parts of the tree work together to protect and sustain it. Engage the students in a discussion of how nature can be inspiring and how they have been inspired.

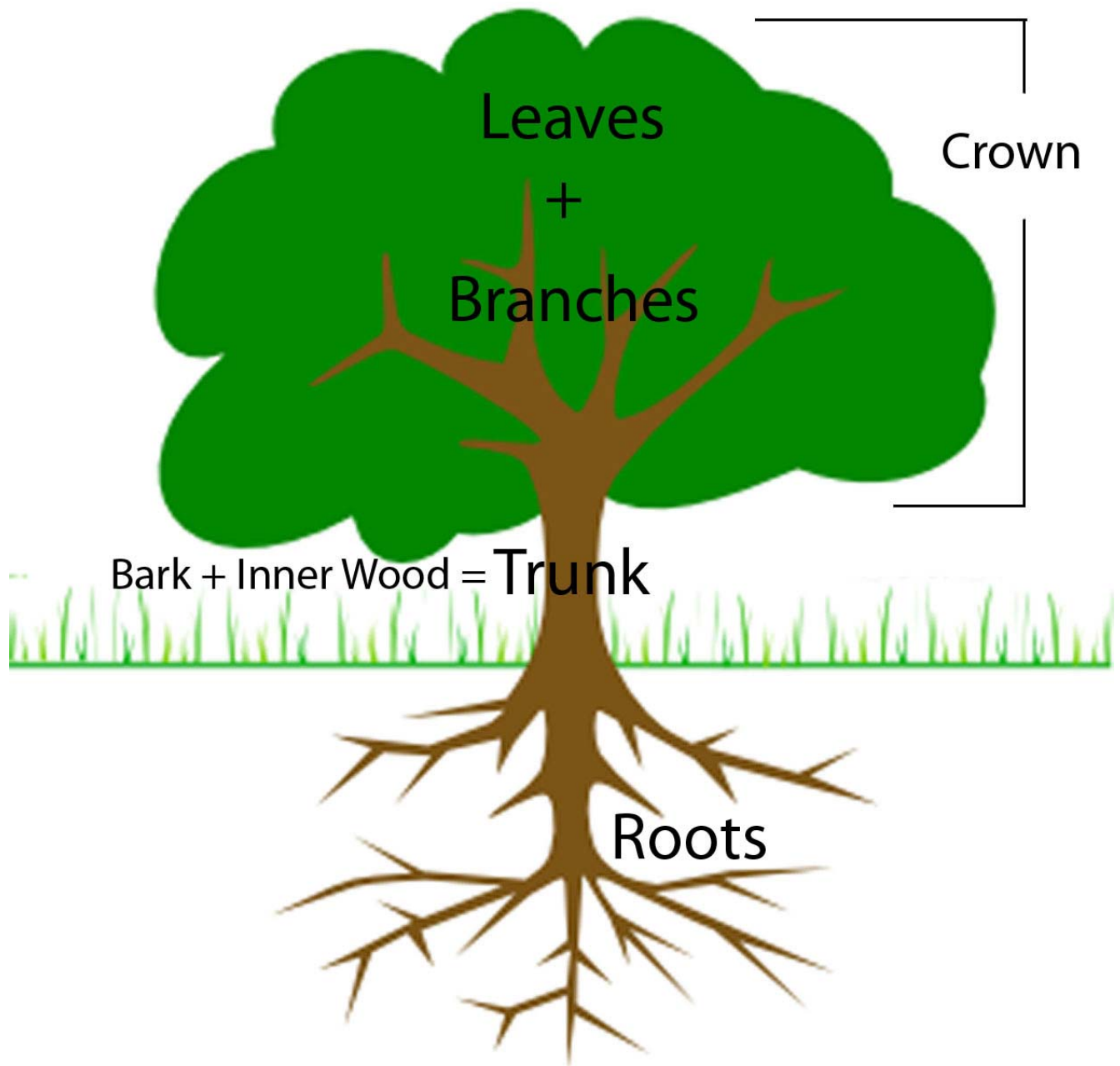
Additional topics: If there is time, the teacher may ask each student to choose a leaf from outside that they would like to preserve by pressing the leaf to add to their booklet. To make a leaf pressing, put the desired leaf between two pieces of wax paper. Next, put the wax paper and leaf on a surface that can be ironed on and place a paper towel or thin dish towel over the wax paper so that the iron does not touch the wax paper. With the iron set on medium, dry heat, gently and evenly iron over the area where the leaf is sandwiched between the wax paper. The heat will seal the leaf in the wax paper. Students may wish to cut out their pressed leaves and glue them onto a sheet of paper to add to their booklet. When cutting, leave 1 inch of wax paper around the perimeter of the leaf; see Fig. 4 for diagram of how to cut out the pressed leaf. The teacher may also choose to use a laminating machine for the same effect.

Attachments: Answer keys with labeled tree parts; see Fig. 1- Fig. 3. Paintings and poetry inspired by trees. Fig. 4, diagram of how to cut a pressed leaf out of the wax paper or laminating paper.

Developed by: Deborah Sason

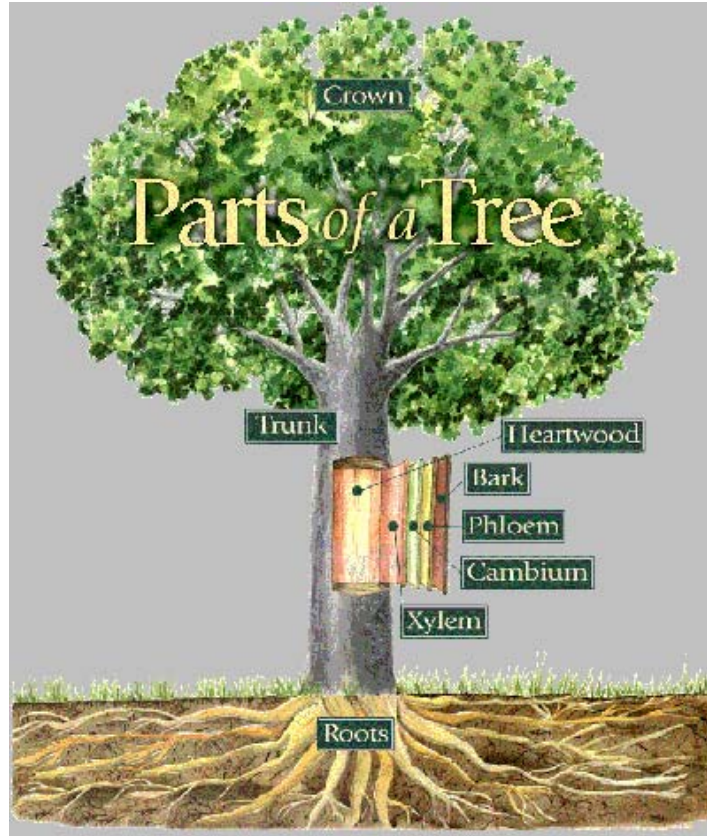
Date: March 16, 2010

Teacher Answer Key: Fig. 1



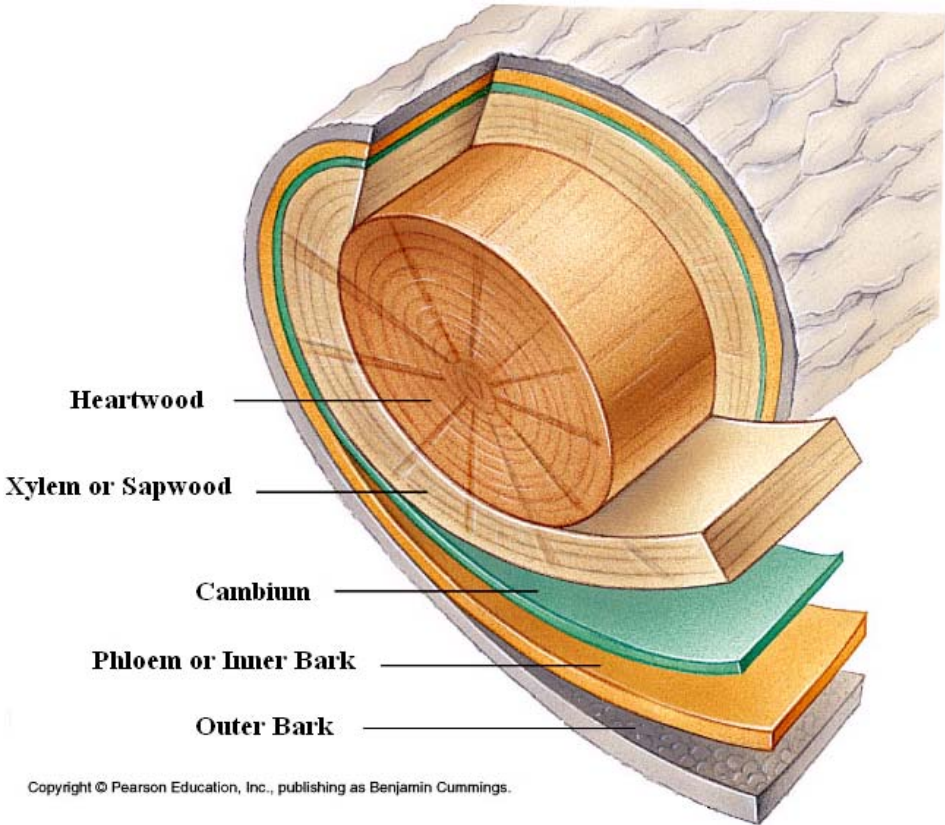
Source: http://www.viviente.com/discovery/science/trees/session1/tree_diagram_labeled.jpg

Teacher Answer Key: Fig. 2



Source: <http://blocs.xtec.cat/trees/files/2007/10/partssofarree1.jpg>

Teacher Answer Key: Fig. 3



Source: <http://www.uic.edu/classes/bios/bios100/lectf03am/treetrunk.jpg>



Vincent Van Gogh "Branches of an Almond Tree," 1890



Piet Mondrian "Grey Tree," 1911



Nina Kuriloff “Tree Eye,” 2009



Gustav Klimt "The Tree of Life," 1909

“On a Tree Fallen Across the Road” by Robert Frost

(To hear us talk)

The tree the tempest with a crash of wood
Throws down in front of us is not bar
Our passage to our journey's end for good,
But just to ask us who we think we are

Insisting always on our own way so.
She likes to halt us in our runner tracks,
And make us get down in a foot of snow
Debating what to do without an ax.

And yet she knows obstruction is in vain:
We will not be put off the final goal
We have it hidden in us to attain,
Not though we have to seize earth by the pole

And, tired of aimless circling in one place,
Steer straight off after something into space.

“The Presence of Trees” by Michael S. Glaser

I have always felt the living presence
of trees
the forest that calls to me as deeply
as I breathe,
as though the woods were marrow of my bone
as though
I myself were tree, a breathing, reaching
arc of the larger canopy
beside a brook bubbling to foam
like the one
deep in these woods,
that calls
that whispers home

“Think Like a Tree” by Karen I. Shragg

Soak up the sun
Affirm life's magic
Be graceful in the wind
Stand tall after a storm
Feel refreshed after it rains
Grow strong without notice
Be prepared for each season
Provide shelter to strangers
Hang tough through a cold spell
Emerge renewed at the first signs of spring
Stay deeply rooted while reaching for the sky
Be still long enough to
hear your own leaves rustling.

“The Tree” by Tom Splitt

The calm quiet strength of a tree
Anchored deep in the earth
Reaching high in the sky
The calm quiet strength of a tree

The calm quiet strength of a tree
Full of life from its roots
To the tiniest branch
The calm quiet strength of a tree

And oh, how it comforts me
How it teaches me
Without a sound
Then I realize at once
That this tree and I are one
In eternity

The calm quiet strength of a tree
From the weight of its trunk
To its delicate leaves
The calm quiet strength of a tree

The calm quiet strength of a tree
Showing anyone near
All the secrets of time
The calm quiet strength of a tree

“The Heart of the Tree” by Henry Cuyler Bunner

What does he plant who plants a tree?
He plants the friend of sun and sky;
He plants the flag of breezes free;
The shaft of beauty, towering high;
He plants a home to heaven anigh
For song and mother-croon of bird
In hushed and happy twilight heard -
The treble of heaven's harmony
These things he plants who plants a tree.

What does he plant who plants a tree?
He plants cool shade and tender rain,
And seed and bud of days to be,
And years that fade and flush again;
He plants the glory of the plain;
He plants the forest's heritage;
The harvest of a coming age;
They joy that unborn eyes shall see —
These things he plants who plants a tree.

What does he plant who plants a tree?
He plants, in sap and leaf and wood,
In love of home and loyalty
And far-cast thought of civic good —
His blessing on the neighborhood
Who in the hollow of His hand
Holds all the growth of all our land —
A nation's growth from sea to sea
Stirs in his heart who plants a tree.

Cutting pressed leaves: Fig. 4

