

Adopt a Tree

Year-Round Activity for all Ages

1. Find a **special tree** nearby. i.e., In your backyard or a local park. Make sure it is close to your house or apartment so you can visit often. Preferably a tree that has a few low-lying branches so you can observe them up close.
2. Create a simple **nature journal** and record the following:
 - a. What **type of tree** is it? If you're not sure look it up online or from a school or library book.
 - b. Name your tree.
 - c. Write a **poem or song** about your tree. Keep adding verses or new poems and songs.
 - d. **Draw pictures** of your tree through the seasons.
 - e. Is there **lichen** on your tree and if so how many kinds? Use a magnifier to observe if you have one.
 - f. Observe and record the number of **critters** that visit, live in, or snack on your tree.
3. Water your tree during hot and dry spring and summer days.
4. Measure your tree's **circumference**.



5. Measure the **height** of your tree with a stick! See description below.
6. **Research and record** all the important things trees do for the world.
7. Share your knowledge and findings with family and friends.
8. Follow the 4 worksheets from The Big Book of Nature By Jacob Rodenburg and Drew Monkman. See attachments.



Measuring a Tree with a Stick

Students will calculate the height of trees using simple trigonometry ideas, by only using a stick, their bodies, and a measuring tool.

MATERIALS NEEDED

1. Meter stick
2. Measuring tape
3. Calculator
4. Paper to write calculations

PRIOR TO ACTIVITY

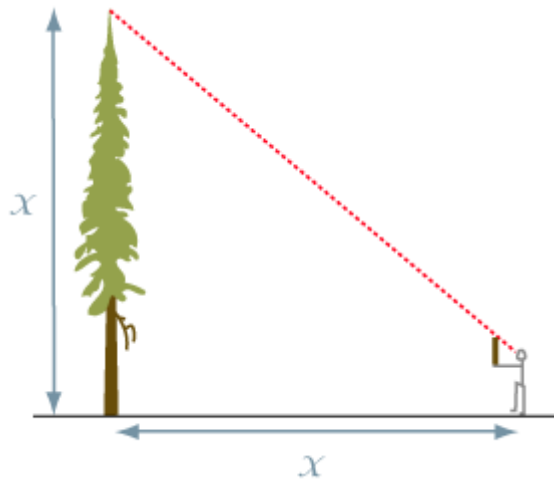
Review right angles and the concept of a right-angle triangle.

THE ACTIVITY

1. Get a stick that is equal in length to the distance from your eye (cheekbone) to your fingers when your arm is fully extended in front of your face. Break off part of the stick or mark it at the correct length if you don't find one that is exactly right. (Can also use meter stick)
2. Grasp the stick by the tips of the thumb and index finger and hold it out in front of you with your arm fully extended. The stick must be held vertical.
3. Walk toward or away from the tree until the tip of the stick is visually lined up with the top of the tree and the bottom of the stick is lined up with the bottom of the tree. Your line of sight to

the tree base should be as close as possible to horizontal. In sighting to the top and bottom of the stick rotate your eye rather than your head.

4. Take one giant step back to account for your height to lessen the scientific error in the height of the tree.
5. The distance from your feet to the base of the tree is equal to the height of the tree. Measure this distance with a measuring tape.



**My Adopted Tree
(Fall)**



Initial visit: _____ Date: _____

- Height: _____ feet (meters), or about _____ times my own height
- Trunk circumference: _____ inches (centimeters), or about _____ of my hands
- Bark: color and shade _____ Texture _____
- What else do you notice? (e.g., moss? holes?) _____
- Leaves: color and shade _____ Measurements _____ in. (cm) by _____ in. (cm)
- Leaf type: _____ (simple or composite) Arrangement: _____
(opposite or alternate)
- Rub a leaf. It smells like _____
- Are there any signs of insect activity or use by birds and/or mammals? _____
- Describe them _____
- Are there any fruits or seeds present? _____ Describe them _____
- How do you think the fruits or seeds dispersed? _____

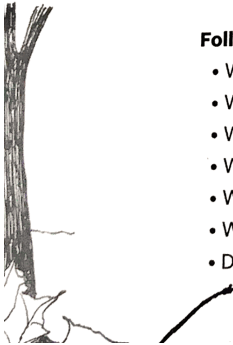
- Based on your description, give your tree a fun name (e.g., "Rough Roy") _____

- What species is your tree? _____
- Why did you choose this particular tree? _____

- Draw or photograph the tree as a whole, a leaf, a seed or fruit, the twig where two leaves are attached. (Use back of sheet.)
- Write in your nature journal about your tree. For example, you could write about some experiences it may have had since it was a seedling. Write in the first person, as if the tree is talking.
- Press a couple of leaves and include them in your natural journal or on a bulletin board. Alternatively, include some leaf prints.

Follow-up fall visits

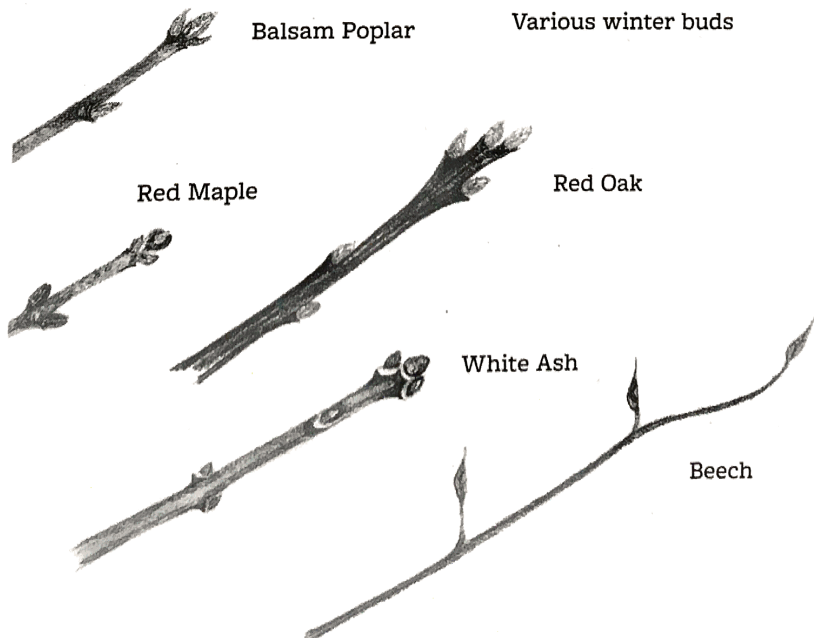
- When did the leaves start to change color? _____
- What color(s) did the leaves become? _____
- When did the tree reach its peak color? _____
- When did leaves start to fall? _____
- When had all (or nearly all) of the leaves fallen off? _____
- What does a fallen leaf from the tree smell like? _____
- Drawings and/or photographs (use back of sheet)



My Adopted Tree (Winter)

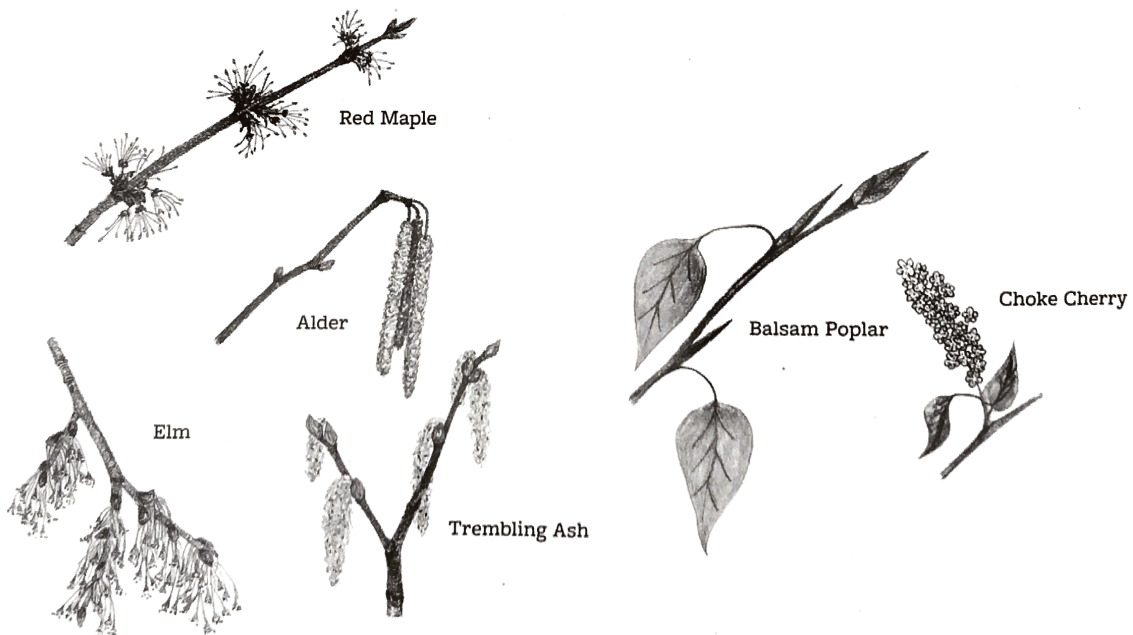
1. Find a twig where last year's leaves were attached. What color is it? _____
What color are the larger branches? _____
2. Look to see if there are buds on the twig.
 - Are they opposite ___ or alternate ___?
 - Is there a bud(s) at the very end of the twig? ____ Is it different from the side buds? ____
If so, how is it different? _____
 - What color are the buds? _____ How long is the average bud? _____ in./cm
 - Using a hand lens, look to see if there are any scales on the bud. If so, how many? _____
 - Just below the bud, try to see where last year's leaf was attached. The attachment point is called a leaf scar. (Use back of sheet.)
 - Tie a small piece of string or masking tape just below a healthy-looking side bud (Bud A) and another piece below a large end bud (Bud B). Draw or photograph them before they begin to swell and open in spring. You will come back in the spring to see what comes out of each bud (leaves? flowers? both?).
3. What else do you notice?
 - Are there any signs a bird, mammal or insect has been using this tree, such as tracks in snow, insect egg mass, old nest in branches, etc.? _____
 - Look for fallen leaves on the ground under the tree. Describe them and explain how they have changed since they have fallen. _____

4. Drawings or photos (use back of sheet). Draw a section of a twig showing a bud and leaf scar; draw whole tree.



My Adopted Tree (Spring)

1. Take a picture of your tree every week or so, and more often when change is happening fast. Always stand in the same spot to take the picture. Put the pictures in your nature journal or on back of sheet.
2. Look carefully at the two buds you have identified with ribbon or tape.
 - When did the buds start to open?
Bud A _____ Bud B _____
 - What came out of each bud?
Bud A: _____
Bud B: _____
 - Take a photograph or sketch of each bud, showing all the growth that has emerged.
 - When did the first flowers appear? _____
 - When did the first leaves appear? _____
 - What shade of green are they? _____ What do they smell like? _____
 - What color are the flowers? What do they smell like? _____
What kind of insects are visiting the flowers (if any)? _____
 - Make a detailed sketch of a flower. Try to show all of the parts (e.g., pistil, stamen, etc.). (Use back of sheet.)
 - Take a picture or make a sketch of a leaf and a flower and place on back of sheet.
 - When had all of the leaves fully emerged? _____
 - Are any animals using the tree, such as birds, insects, spiders, etc.? Can you identify them?



My Adopted Tree (Summer)

1. Early summer visit: _____ Date: _____

- Are the leaves being eaten by insects? ____ If so, what kind? _____
- Describe the damage to the leaves _____
- Are there any fruit or seeds on the tree? ____ When did they appear? _____
- Check all of the new growth that has come out of each of the two buds you marked.
 Bud A: How many leaves ____, flowers ____, fruit/seeds ____? Measure the length of new growth from original bud to tip of furthest leaf _____ in. (cm)
 Bud B: How many leaves ____, flowers ____, fruit/seeds ____? Measure the length of new growth from original bud to tip of furthest leaf _____ in. (cm)
 Comments _____

- As you did in the spring, take a photograph or sketch of all the growth that has emerged from each bud. (Use back of sheet.)

2. Late summer visit: _____ Date: _____

- Check again all of the new growth that has come out of each of the two buds you marked.
 Bud A: How many leaves ____, fruit/seeds ____? Measure the length of new growth from original bud to tip of furthest leaf _____ in. (cm)
 Bud B: How many leaves ____, fruit/seeds ____? Measure the length of new growth from original bud to tip of furthest leaf _____ in. (cm)
- Comments _____
- Is your tree suffering from any kind of stress (e.g., drought, insects, fungi, etc.)?
 If so, what? _____
- Sit in the shade under the tree. How does the temperature compare? _____

- Other comments? _____



Curriculum Links

Grade 1 Life Systems 3.0 Basic needs and characteristics of plants

Grade 2 Understanding Air and Space Systems 3.0 understand how air and water are used by living things. 3.3 describe ways in which things, including humans, depend on air and water 2.0 similarities and

differences in plants 2.2 Parts of plants **Grade 3 Understanding Life**

Systems 3.1 Needs of Plants 3.4 How plants get energy from the sun

3.8 Threat to plants **Grade 4 Life Systems** 2.3 plants and animals and

dependence on habitats **Grade 5 Science and Technology** 1.1 Bio

diversity **Grade 6 Science and Technology** 1.0 Human impact on

biodiversity **Grade 7 Science and Technology** 3.1 demonstrate an

understanding of an ecosystem.